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RATE RESEARCH



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RATE RESEARCH COMMITTEE
OF THE
NATIONAL ELECTRIC LIGHT ASSOCIATION
120 WEST ADAMS STREET - - - CHICAGO

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Rate Research

Issued Every WEDNESDAY by the RATE RESEARCH COMMITTEE

120 WEST ADAMS STREET - CHICAGO

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CONTENTS.	Page
Rate Research Vol. III Announcement	3
Copies of the Model Public Utility Law	3
RATES	4
Cooking and Heating Rates—California	4
COMMISSION DECISIONS—CALIFORNIA	5
Discrimination	5
BATTERY CHARGING RATES, LYNN, MASS.	8
WISCONSIN COMMISSION PRACTICE	9
NEW PUBLIC SERVICE LAWS	11
District of Columbia	11
West Virginia	11
Idaho	11
Missouri	11
INDIANA UTILITY LAW	12
REFERENCES	14
Rates	14
Public Service Regulation	15
General	16

Rate Research

Vol. 3.

CHICAGO, APRIL 2, 1913

No. 1

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

3 RATE RESEARCH

This issue is the first number of Volume 3 of RATE RESEARCH.



The issue of March 26th, No. 26, will contain an exhaustive classification and index of Volume 2. The preparation of this index has involved a vast amount of work, and in order to have it complete, it was deemed wise to delay this issue.



The work is being rapidly pushed to completion, however, and this issue should be in the mail within ten days.



A limited number of complete bound copies of Volume 2 will be ready about May 1st, and the price for these bound copies will be \$8.00 each.



Current subscriptions at the regular rate must now begin with Volume 3.



Copies of the Model Public Utility Law

The Rate Research Committee has reprinted the tentative Model Utility Bill prepared by the Committees of the Department on Regulation of Utilities of the National Civic Federation. Member Companies may obtain copies of this bill at \$1.00 each upon application to the Secretary of the Rate Research Committee.

EDITORIAL NOTE.—All indented matter is direct quotation.

RATES

614—Heating and Cooking.

DATA ON ELECTRIC COOKING AND HEATING, by BEN M. MADDOX, illustrated article, *Journal of Electricity, Power and Gas*, 4½ pages, Feb. 1, 1913, p. 107.

The Mt. Whitney Power and Electric Company, Visalia, California, operating two water power plants and two steam plants, with circuits covering the greater part of Tulare County, and extending into Kern County, had developed an irrigation pumping load to a point where it became the main part of the company's business, which left a very large winter valley in the yearly load curve. To correct this, after thorough investigation, the company entered on a campaign for heating and cooking business, adjusting the prices as experience indicated, and have developed a very successful industry. This article gives full information of the results, with illustrations, load curve, and representative accounts, and a list of the wiring rules observed in making the installations. It is stated that the business has now passed the experimental stage, no dissatisfaction has been met, every consumer becomes a booster, each outfit sold is a perpetual advertisement for others, and it is expected that within the next few years, electricity for cooking and heating will be quite as universally used in this locality as it is now for lighting and pumping.

The rates were worked out to fit the conditions as follows : It was deemed reasonable to obtain the lighting rate of 9 cents per kilowatt-hour, for the current used for lighting, about 3 cents per kilowatt-hour for cooking, and 1 cent per kilowatt-hour for heating; and to reduce the investment in meters, and the cost of handling accounts, one meter is used for each residence, and these rates combined by using a sliding schedule, each section to equal the average consumption of its class of service.

The resultant existing rate is:

COMBINATION LIGHTING, COOKING AND HEATING

Rate—

10.5 cents per kilowatt-hour for first	20 kilowatt-hours per month.
3.5 " " " " " next	150 " " " "
1.0 " " " " " excess over	170 " " " "

Prompt Payment Discount—

15 per cent on bills paid within 10 days.

Minimum Charge—

\$2 per month.

HEATING RATE

(Lights registered on separate meter)

Available for residences and business houses and offices.

Rate—

3.5 cents per kilowatt-hour for first	150 kilowatt-hours per month.
1.0 " " " " " " excess over 150	" " " " "

Prompt Payment Discount—

15 per cent on bills paid within 10 days.

Minimum Charge—

\$1 per month.

COOKING RATE

Available for hotels and restaurants.

Rate—

3.5 cents per kilowatt-hour.

Prompt Payment Discount—

15 per cent on bills paid within 10 days.

FLAT RATE

Available to all consumers for water or other heaters operating continuously.

\$8.30 per kilowatt per month.

Prompt Payment Discount—

15 per cent on bills paid within 10 days.

COMMISSION DECISION—CALIFORNIA

65—Discrimination.

In the matter of the Application of various Public Utilities for permission to charge less than published schedule of rates in certain classes of cases. Opinion and order of the California Railroad Commission, prescribing classes entitled to free service. Jan. 24, 1913.

The Commission ordered the public utilities of the state, other than common carriers

to file with the Commission a statement containing a segregation into the different classes of cases, in which a product or commodity was, on March 23, 1912, being furnished or supplied by such utility at less than its schedule rates, with the names of the persons or corporations receiving such lesser rates, arranged under appropriate classes, with such explanations as might be helpful to an understanding of the circumstances surrounding each case. Each utility was directed to specify the cases in which it desired to continue such deviations from published schedules. It was pointed out that the order did not refer to schedule rates, varying from other schedule rates by reason of difference in time, or amount of use of commodity or service, but rather to classes of cases, such as contracts for right of way, employes, charitable uses, educational

purposes, the state, or political subdivisions thereof, in which cases it has been more or less usual to grant such privileges, and in which the compensation collected is not a schedule rate, though it may be some percentage thereof.

The order furthermore contained the following paragraph: "The Commission particularly desires that each such utility write to the Commission, giving fully its views on the general question of deviations from published rates, from the point of view of cases as to which the utility may desire to continue to deviate."

In response to this order, the Commission has received replies from between 200 to 250 utilities in the state, other than common carriers. These replies show quite clearly the situation as it exists in California today. . . .

Sixty-one gas and electric companies filed reports with the Commission. Of this number, twenty-six reported that they had no deviations from their published rates. The other thirty-five reported deviations in the following classes of cases:

Class of concession.	Number of utilities making concession.
1. Employees	20
2. State, county, and city governments and departments	16
3. Special contracts	13
4. Rights of way	10
5. Charity	7
6. Churches	6
7. Educational	2
8. Federal government	2
9. Chambers of commerce.	2
10. Town theatre	1
11. Railroad	1

The replies received show a great divergence of views. Some utilities, particularly the smaller ones, expressed the view that there should be no deviations at all. One of these utilities states its conclusions as follows:

"The free list is the thief that robs and undermines any business."

After due consideration of all the reports and opinions received from the public utilities, the decision finds:

This Commission is of the opinion that, in so far as possible, there should be no concessions from the published rates of public utilities. We believe that if it is desired to make donations, it would generally be preferable to make the donations in cash instead of in

service. We believe that in this way a large number of inequalities and discriminations now existing, would be removed, and a higher morale established on the part of the public utilities. . . .

Held, that public utilities other than common carriers may, if they so desire, in addition to the classes of cases specified as applicable to them in section 17 of the Public Utilities Act (referring to telephone and telegraph companies), extend grants of free or reduced rates service to (1) Federal and State governments, and the political subdivisions thereof, including the departments thereof, and public institutions; (2) fairs, and other public expositions and celebrations; (3) charity as defined in the opinion; and (4) employees. . . .

In permitting the utilities to continue deviations in the classes of cases specified in the order, we do not wish to be understood as saying that the utilities should grant deviations in those classes of cases. The effect of this Commission's order will simply be to permit the utilities, if they so desire, to grant free or reduced rate service in those classes of cases. If any utility does not desire to deviate from its published rates, it is entirely within its right to refuse any deviation. However, if any utility does grant concessions to any of the four classes of persons authorized in the order, it will be expected to do so uniformly, without discrimination between members of the class, under the same or similar conditions. . . .

The practice, as to allowing deviations, in rates, in other jurisdictions, is mentioned as follows:

Massachusetts, while authorizing deviations from the rates of common carriers in specified cases, do not authorize any deviations from the rates of public utilities other than common carriers.

Wisconsin does not seem to permit any deviations except that under section 92 of the Public Utilities Act, public utilities may continue to furnish service on the terms specified in any existing contract executed prior to April 1, 1907.

Section 75 of the Public Service Commission Act of Ohio grants permission to all public utilities to grant free or reduced rate service to the United States Government and the State government or any political subdivision thereof, for charitable purposes, fairs or expositions and to any officer or employe of the utility. The Ohio Commission is inclined to construe these exceptions strictly, as is shown by the following extract from a letter from that Commission: "The Ohio Commission stands against the issuing of free or reduced rates to any person or class of persons, as a rule, in any community, and is inclined to give strict construction to the statute and to stand clearly upon the terms thereof."

On the other hand, a large number of states specify certain classes of cases in which public utilities are permitted to grant concessions from their published rates. Washington has gone so far as to work out a special set of cases for each class of such public utility and to incorporate these provisions into the Public Service Commission Act. This act provides that gas and electric companies may grant concessions to specified classes, that telephone and telegraph companies may grant concessions to other classes, and that water companies, wharfingers and warehousemen may grant concessions to still other classes.

The Virginia Corporation Commission is authorized to approve reduced rates for charitable institutions.

The Oklahoma Corporation Commission writes as follows: "As to telephone, gas, electric and that class of public service this Commission has ruled that they may give free service to the municipal officers, if such is provided in the franchise, or may do so by agreement. They may give reduced or free rates to churches, charitable or eleemosynary institutions and may give reduced or free rates to their employes, same being considered as a part of the salary paid the employes. We do not allow free service given for the use of grants of right of way. This could be greatly abused. We think it best for the company to pay for the right of way and charge for its service."

BATTERY CHARGING RATE

LYNN, MASS.

615.1—Limited Hour Service.

DOUBLE RATE FOR CHARGING IN LYNN, *Electrical Review*, March 22, 1913, p. 594.

The Lynn Gas and Electric Company of Lynn (pop. 89,336), Mass., has adopted a new schedule of rates for charging storage batteries, giving a reduction from 8 cents per kilowatt hour at all times of day and night, to 4 cents per kilowatt hour for off peak service, the peak hours being designated as follows:

October 1 to January 1: 3:30 to 11 p. m.

January 1 to April 1: 4:30 to 11 p. m.

April 1 to July 1: 6:30 to 11 p. m.

July 1 to October 1: 5:30 to 11 p. m.

Meters in use in charging stations will be in pairs, and a clockwork arrangement will throw the current from one meter to the other, at the hour when the different rate for service goes into effect.

WISCONSIN COMMISSION PRACTICE

2—Public Service Regulation

THE REGULATION OF PUBLIC UTILITIES IN WISCONSIN, by COMMISSIONER HALFORD ERICKSON. Address before the Joint Meeting of Western Society of Engineers, and American Institute of Electrical Engineers, Chicago, March 24, 1913. This paper will be printed in the Proceedings of the Western Society.

This important paper, opening with a brief statement of the historical origin of regulation in the common law provisions and practice from the earliest times, and more specifically in England up to the latter part of the eighteenth century, and in colonial America, comes to the present day methods of commission regulation, and then gives an account of the work of the Wisconsin Railroad Commission, covering its practice in regulation of service, rates, and capitalization.

The discussion of this paper brought out important statements by Mr. Erickson on the following points:

314—Overhead Charges.

As to overhead expenses, that is also a matter, I think, that is not quite understood. The Wisconsin Commission in the case of small utilities allows twelve per cent. In the case of large utilities where they have a great deal of difficult city work to do, crossing rivers and work of that kind which often involves considerable risk, we allow fifteen per cent. That, however, is the figure which is apparent, which is visible in determining the unit price upon which to compute the cost of the various elements. We nearly always allow ten per cent for contractor's profit. That is an element which entered into the cost as a whole and is not given separately. However, if that were taken out of the unit prices where it appears, and added to the twelve per cent, that figure would be considerably increased. It might not add ten per cent to that figure but it probably would add eight per cent or seven per cent, sometimes nine per cent, so that the overhead expense used by us is considerably higher than twelve per cent.

We have explained that on several occasions, but it appears perhaps that our practice is not quite understood.

314.3—Bond Discount.

We very often have to take into account discounts on loans. If a bond which bears the ordinary rate of interest cannot be sold at par, if the extension to the utility is needed, needed perhaps more than the money, then we take that discount into account. It very often happens that a six per cent bond sells perhaps, at no higher price than

ninety-two. It is better to take that into account in the value of the plant, and to secure the money, because after all the final standard in all matters of this kind is what can you get the money for. If you cannot get the money for five per cent or six per cent, or at such a value of the utility, you must raise the value or raise the rate of return.

61—Character of Service.

As to the additional cost basis of rate making, that is a very important matter. Electric current, for instance, comes in competition with steam, with producers' gas, and sometimes other power. Many are of the impression that under a public utility law, each class of service has to yield relatively the same rate of profit to the utilities. Of course, that does not mean the same rate because some service costs more than other service, but the profit in the minds of many has to be the same. Now, as the law is interpreted by us, that is not the case. We work out a rate schedule which is based upon a proper proportionment of the total cost, and such a classification of the service as we think ought to be made. That is, we put in one class residences, as a rule, though there are some exceptions to that. In another class the commercial service, business service, store service, and so on. Then there are, perhaps, four or five classes of power service, depending upon conditions. You very often find a large power user which simply will not take current at a rate which will yield anywhere near six or seven per cent profit on your investment.

615.2—Development Rates.

I just worked out a case of that kind. When we meet with a case of that kind, about the only thing one can do is to find out the additional cost to the plant of serving that customer, and add a little bit to that cost so that it will contribute something to the total receipts, something to the profits, and then place that customer in a class by itself. It may be only one customer but we create a class for that customer, and place it upon an entirely different basis from the rest of the customers.

If anyone comes in under exactly the same condition he can get the same rate, but it may apply to only one customer. If that customer can be taken at a rate that covers the additional cost of serving him, plus perhaps one or two per cent on the part of the investment used by him, it goes into the total fund, and reduces by that much the amount the rest of the customers have to pay. Hence it is very valuable to us, it is good policy to take that customer. We always see that he is taken whenever there is any way of doing it, and in most cases there is. A street railway was taken on by the local electric lighting plant the other day, on that basis, on a very low rate of profit.

This last week I worked out a rate schedule, under which four power users in the city were taken on the additional business basis. Each man, however, had to be placed in a class by himself, in order to furnish the service, and it did create a class for that customer. Of course, anyone else who comes in later can have the same benefit, provided the conditions are the same. But these four users are large users, they are manufacturing establishments operating from eight to ten hours a day, and the amount they contribute to the total amount is, of course, a very valuable addition not only to the plant and its income, but also to the rest of the consumers.

122—Just and Reasonable Rates..

In his paper Mr. Erickson stated that some rates had been found which were discriminatory and unreasonable, but he pointed out that these rates were not so unreasonable that the Commission considered it necessary to penalize the companies, under the provisions of Section 60 of the Wisconsin law, which requires that if the rates are found to be unreasonable, the Commission shall fix the expense of the investigation, and direct the utility to pay the same within 20 days.

268—NEW PUBLIC SERVICE LAWS**DISTRICT OF COLUMBIA**

An Act of Congress conferring upon the District Commissioners, the powers of a Public Utility Commission, passed both houses, as an amendment to the District Appropriations Bill, and became a law by the approval of President Taft, March 4, 1913.

WEST VIRGINIA

A law creating a public service commission was passed and approved by the Governor, February, 1913, and will be in effect 90 days from its passage.

IDAHO

The Senate of Idaho has passed the bill to create a public utilities commission, and the measure is now before the Governor for signature.

MISSOURI

The bill abolishing the elective State Railroad Commission and all municipal utility commissions in Missouri, and creating a public service commission of five members, with powers of regulation over all public utilities of the state, was signed by the Governor on March 18, 1913.

Statements regarding these laws will be given in a later RATE RESEARCH.

INDIANA UTILITY LAW.

268—Public Service Laws.

This Act, known as the SHIVELY SPENCER UTILITY COMMISSION ACT, in the main, is closely modeled after the Wisconsin law, the following being the principal exceptions:

211—Qualifications.

Sec. 2. Five members are appointed by the Governor for a term of four years. This will allow a single Governor to change the entire personnel of the Commission, appointing two commissioners in one year. The present members of the Railroad Commission are retained in office for their present terms.

224—Power of Commission Over Rates.

Sec. 7. This section contains a very drastic clause reading as follows:

Nothing in this act contained, shall authorize any public utility during the remainder of the term of any grant or franchise under which it may be acting at the time this act takes effect, to charge for any service, in such grant or franchise contracted, exceeding the maximum rate or rates therefor, if any, that may be fixed in such grant or franchise.

This is a grave departure from the Wisconsin law, and practically means that wherever a municipality has driven an unfair bargain, it must bind the corporation, even although an investigation might prove the rate to be unjust.

311—Basis of Valuation.

Sec. 9. The Commission shall value all property of every public utility actually used and useful for the convenience of the public. *As one of the elements in such valuation, the Commission shall give weight to the reasonable cost of bringing the property to its then state of efficiency.*

212—Officers.

Sec. 3. Counsel for the Commission also serves as Counsel to the Governor.

22—General Powers of the Commission.

Sec. 18. Every Executive and general officer and a majority of the Board of Directors of every company shall be a bona fide resident and citizen of the State of Indiana.

It might be expected that this provision would fill many Indiana boards with dummy directors, but many holding companies will no doubt develop under this law efficient and capable local representatives.

22—General Powers of the Commission.

Sec. 4. While street railway and interurban railways are included under the jurisdiction of the Commission, steam railroads remain under the old Railroad law, which has no rate or stock and bond jurisdiction.

221.1—Issue of Stocks and Bonds.

Secs. 88-93. These provisions are adapted from provisions in the Model Utility Law of the National Civic Federation Committee, the Wisconsin law and the New York law. A very important change in the law is the provision in Sec. 89 which allows 4 per cent bonds already authorized but not issued, to be issued at not less than 65 per cent of par.

No stock shall be sold at a discount without the approval of the Commission, and if so sold the Commission shall make a record thereof and give such publication of the fact as it may deem necessary at the expense of the utility.

Sec. 96. The fee for issuing stocks and bonds is 15c a hundred, an advance over the Wisconsin law, which is 10c per hundred. New York and other States make no charge for the certificate. These charges are appropriated to the Commission for expense instead of to the customary general fund.

142—Reincorporation.

Sec. 94. Contains a new clause providing for compulsory incorporation within sixty days after purchase under mortgage sale, etc., of the properties of a utility.

23—Complaints.

Sec. 57. The Wisconsin law requires 25 persons, firms or corporations or associations to unite in a complaint as to rates. The Indiana bill only requires 10 such persons, etc., but specifies that the petitioner must be directly interested in such rate.

112—Franchises.

Secs. 97-109 relate to indeterminate permit. The Indiana sections are slightly different from the Wisconsin law, although modeled after them.

Franchises granted in the future shall be indeterminate permits which grant monopoly privilege during good behavior to the utility, but the municipality may acquire any existing plant by purchase or condemnation. Any public utility may surrender its existing franchise prior to July 1st, 1915, and receive in lieu thereof an indeterminate permit. If the utility law is repealed, the old franchises are automatically reinstated to run for at least 5 years from the date of repeal.

REFERENCES

RATES

41—Cost of Service.

THE COUNTRY SIDE NETWORK, editorial, and the PRODUCTION AND DISTRIBUTION OF ENERGY, address by SAMUEL INSULL, before the Franklin Institute, Philadelphia. Electrical World, March 22, 1913, p. 597 and p. 603.

This paper gives reports of systems of unified service by means of interconnected transmission networks, from large central stations, supplying an ever extending service for an increasing number of uses in scattered communities, and their related agricultural and industrial regions. In addition to the lighting and motor service in towns, water pumping, ice making, interurban electric railway operation, farm applications, drainage pumping and mine working are some of the installations which have been taken on, giving a business rivaling in diversity, load factor and magnitude that in some of the great city central stations. The large opportunities for off-peak uses of energy, the combining of loads having a diversity factor of at least 35 per cent, and tremendous saving in investment and operation, are some of the factors going to make centralized production always most economical, one instance mentioned where a number of individual stations were replaced by unified service, effecting a decrease in production costs from 7.08 cents per kilowatt-hour to 2.87 cents per kilowatt-hour, a saving of 4.21 cents per unit. Touching on the future possibility of trunk-line electrification of steam railroads, the speaker referred to the economic value of obtaining energy for such use, from power lines already gridironing the countryside.

54—Minimum Charge.

Complaint against the CAMBRIDGE (pop. 6,407), MARYLAND, GAS, ELECTRIC LIGHT AND POWER COMPANY, alleging breach of contract with the Town Commissioners by demand of meter rental charge of 50 cents per month. Decision of the Maryland Public Service Commission prohibiting the charge. Jan. 14, 1913.

The company operates under a contract with the Town Commissioners of Cambridge to furnish gas to all private consumers at a rate not exceeding \$1.50 per thousand feet, and the Commission holds that while this contract remains in force, no sum may be demanded from any consumer which would constitute payment at any higher rate, and the collection of 50 cents for a monthly consumption of less than three hundred and fifty cubic feet would amount to a charge higher than at this prescribed maximum rate. The company has filed rates with the Commission in which a minimum charge of 50 cents per month is specified, and the opinion states that after the expiration of the contract in question the rates which will then be on file with the Commission will become effective, and will remain so until such time as they may be changed by order of the Commission.

72—Rate Schedules—Ohio.

LIGHTING RATES IN OHIO, collected and compiled by the Ohio Electric Light Association, D. L. Gaskill, Secretary, 58 pages.

In this pamphlet are given the residence and commercial lighting rates, power, and street lighting rates, of Ohio electric companies, arranged alphabetically by names of towns and cities in which they are located (in most cases, the first word of the name of the company). It forms a convenient and valuable digest of comparative rate information for this territory.

75—Comparative Company Data.

COMMONWEALTH EDISON SERVICE, address by PETER JUNKERSFELD, at a meeting of the Commonwealth Edison Section of the National Electric Light Association in Chicago. *Electrical World*, March 22, 1913, p. 615.

This talk, illustrated by lantern slides, gives interesting information concerning the company's service, and relationship with employes. Of the 450,000 houses and apartments in Chicago, 104,800 use electric service, and about 70 per cent of the kilowatt-hours consumed for railway transportation in the city is furnished by the Commonwealth Edison Company. Of the total of about 2000 stockholders, about 300 are employes, and 2000 of its 3770 employes are depositors in the savings fund, by means of which they eventually become stockholders.

75—Comparative Company Data.

MUNICIPAL AND COMMERCIAL LIGHTING AND POWER STATISTICS, OF THE PRINCIPAL CITIES IN THE UNITED STATES, MEXICO, CANADA AND HAWAII. Pamphlet compiled by the Butte, Montana, Electric and Power Company.

This contains alphabetically tabulated statistics of information, covering all the main items of interest, including rates for different classes of service, of municipal lighting, and commercial lighting and power, of the cities as above mentioned; and also, in similar convenient form, statistics of wages paid by central stations of the principal cities in the United States and Canada.

PUBLIC SERVICE REGULATION**2—Public Service Regulation—Law and Practice.**

EDUCATION OF PUBLIC SERVICE COMMISSIONERS, editorial, and PRACTICAL WORKING OF THE PUBLIC UTILITIES LAW, by COMMISSIONER J. H. HALE, of the Connecticut Public Utilities Commission, and Address by John B. Olmstead, formerly a member of the Public Service Commission (N. Y. 2nd D.), *Electric Railway Journal*, 1 page, March 22, 1913, p. 532 and p. 555.

The views of these two Commissioners as shown in the short abstracts of their addresses mark the better understanding and more fair-minded relationship which is increasingly maintained between commissions, and the corporations they regulate. The statement is made that the Commissions often do their best work in bringing the complainants and responsible representatives of the companies together, when impartial reasoning and a business-like presentation of the matter is all that is needed to clear up the difficulty. The public service corporations are generally willing to submit to reasonable requirements and orders, for all that they "have to sell is service, and good service sells better

than poor service, for no man ever made money out of dissatisfaction." To hand out justice both to consumers and producers, is the aim of rightly qualified Commissions, and the effort to do it tends to free them from prejudice, and brings them to an appreciation of some of the difficulties under which corporations labor.

The editorial comment deplores the curse of political rotation in office which is apt to end the service of a Commissioner just when, through experience, he has become most competent for this important work, and suggests that Public Service Commissioners should be appointed under somewhat the same conditions as Supreme Court Judges, namely: for long terms, or with life tenure subject to good behavior.

2—Public Service Regulation.

HOW ARE YOU GOING TO GET IT? by CALVERT TOWNLEY, AERA, 2 pages, March, 1913, p. 633.

Calls attention to the fact that, as public utilities have oftentimes fare limitations in their franchises or city contracts, or are subject to regulation by public service commissions, the fixing of fares is gradually but surely slipping from the control of those who manage these properties, and takes a gloomy view of the outlook for fair treatment by the public of corporations.

GENERAL

112—Franchises.

HOW THE CHICAGO AND CLEVELAND STREET RAILWAY SETTLEMENTS ARE WORKING OUT, by DELOS F. WILCOX, National Municipal Review, 8½ pages, October, 1912, p. 630.

This article, by the franchise expert of the New York Public Service Commission (1st D.), gives a brief history of the traction difficulties, and the agreements by which they have been met, in these two cities, with a resumé of the results obtained in carrying out these agreements, which are set forth in the city ordinances granting the franchises under which the companies are operating. The paper calls the Chicago settlement ordinances a great constructive work of municipal statesmanship, while pointing out certain mistakes which five years' experience have revealed; and similarly reviews the advantages and defects of the Cleveland plan. The paper gives a convenient summary of the main provisions in the ordinances on the problems of street railroads, and is interesting at this time when a proposal for a larger traction merger is pending in Chicago.

83—Municipal Ownership.

AN EXPENSIVE EXPERIMENT. THE HYDROELECTRIC POWER COMMISSION OF ONTARIO, by REGINALD PELHAM BOLTON. New York, Baker and Taylor Company. 281 pages, illustrated. \$1.25. Reviewed in Electrical World, March 22, 1913, p. 637.

The book is the story of the establishment and operation of the government owned hydroelectric power development and transmission system of Ontario, Canada, and contains a large amount of valuable information, not easily obtained, of the workings of this undertaking. The author states that complete computations, and a consideration of all sides of the results obtained, show that the system is not operating so successfully as claimed by those in charge. The book will be read with much interest both by those who agree with the author's presentation, and by those who do not.

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No. 2

RATE RESEARCH



PUBLISHED BY THE
RATE RESEARCH COMMITTEE
OF THE
NATIONAL ELECTRIC LIGHT ASSOCIATION
120 WEST ADAMS STREET - - - CHICAGO

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Rate Research

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CONTENTS.	Page
RATES.....	19
COMMISSION DECISIONS.....	19
New York.....	19
California.....	20
Interstate Commerce Commission.....	21
RATE SCHEDULES.....	22
Jefferson, Iowa.....	22
Cleveland, Ohio.....	22
PUBLIC SERVICE REGULATION.....	23
California.....	23
Massachusetts.....	24
REFERENCES.....	
Rates.....	25
Public Service Regulation.....	28
Investment and Return.....	28
Municipalities.....	30
General.....	31

Rate Research

Vol. 3.

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No. 2

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES

COMMISSION DECISIONS—NEW YORK

72—Rate Schedules.

Complaint of the CITY OF BUFFALO v. THE CATARACT POWER AND CONDUIT COMPANY, and the BUFFALO GENERAL ELECTRIC COMPANY, alleging excessive electric rates. Decision of the New York Public Service Commission (2nd D.) reducing the rates. April 4, 1913.

While the full text of the opinion has not yet been received, the following information of this important decision has been given out by the Commission.

The rates of the Cataract Power and Conduit Company are reduced 28 per cent, from the existing schedule rate, with the exception of current sold to the International Railway Company. It is held that there is no reason for disturbing the contract with the International Railway Company, even if it were within the power to do so, which it is believed the Commission cannot do. . . The Commission does not attempt to interfere with the price paid by the Cataract Company to the Niagara Falls Power Company for energy.

The Commission finds that the schedule of the Cataract Company is well adjusted, so that the reduction is made by a horizontal percentage reduction, from the existing rates, of 28 per cent as above stated.

In the case of the Buffalo General Electric Company, there is an average reduction of 25 per cent upon the basis of the revenues of 1911. . . The Commission prescribes a maximum rate for the Buffalo General Electric Company based upon a division of the consumers into classes as suggested by the company itself, namely, into residence lighting, general lighting, general power, large power and light consumers, and municipal lighting. The average reduction, in percentages, to residence lighting, is 33 per cent, to general lighting, 28 per cent, to general power, 32.7 per cent, large lighting and power consumers, 33.2 per cent, street arc lighting, 10 per cent, with no reduction in incandescent lighting, and no reduction in special and feature lighting.

EDITORIAL NOTE.—All indented matter is direct quotation.

The general scheme of the rate schedules is that which is known as the Wright method.

The resulting prescribed rates are:

RESIDENCE LIGHTING

Rate	7c	per kilowatt-hour for	first	60 hours	use per mo. of max. demand						
	4c	" " " "	next	120	" " " " " "	"	"	"	"	"	"
	1.5c	" " " "	excess over	180	" " " " " "	"	"	"	"	"	"

The maximum demand is to be taken as one quarter of the connected lighting load, which is determined by inspection.

GENERAL LIGHTING

The rates are the same as for residence lighting, except that the maximum demand is taken as one half the connected load.

GENERAL POWER

	7c	per kilowatt-hour for	first	30 hours	use per mo. of max. demand						
	3.5c	" " " "	next	40	" " " " " "	"	"	"	"	"	"
	1c	" " " "	excess over	70	" " " " " "	"	"	"	"	"	"

STREET LIGHTING

The old street lighting prices were, \$56 per year per arc, and \$75 per year per arc.

The new rates are
\$50 per year per arc, and
\$69 " " " " respectively.

CALIFORNIA

72—Rate Schedules.

APPLICATION OF THE SOUTHERN SIERRAS POWER COMPANY, San Bernardino (Pop. 12,779), Cal., for authorization to raise certain of its power rates. Decision of the California Railroad Commission, granting the permission with conditions. Feb. 6, 1913.

This is a second application of this company to change its schedules, the former one, asking permission "to reduce and modify its schedule of rates for electric power service, in the counties of San Bernardino and Riverside (except within incorporated cities and towns)", though it reduced rates for electric cooking and heating service, was found to tend to increase certain rates for pumping plants for irrigation. This was pointed out by the Commission, who directed the company to show causes to justify the proposed increase. The company thereupon amended its petition, and at the hearing before the Commission showed that the "tentative or preliminary schedule of rates" which it sought to modify, had been prepared in advance of the completion of its steam plant, its hydroelectric plant, or its high tension transmission line, and without due knowledge of the actual cost of service to the company. The Commission's order grants authorization

to establish the new schedules as set forth in the application, provided that all present contracts are carried out by petitioner, pending any further action or order of the Commission in regard to such; and provided, further, that the rate for installations of less than 5-horsepower are provided for at a rate which will enable the small user of electric current to utilize same for irrigation service.

And the Commission further specifies that this be done by allowing a rate of 3 cents per kilowatt-hour to installations paying a monthly minimum of \$2.50 for six months of each year.

INTERSTATE COMMERCE COMMISSION

712—Publicity of Schedules.

MAX O. BUREN ET. AL. V. SOUTHERN PACIFIC COMPANY ET AL., complaining that certain rates were illegal. Decision of Interstate Commerce Commission dismissing the complaint. March 10, 1913. Case No. 4917.

The railroad companies filed with the Interstate Commerce Commission supplements to their tariffs, naming advances in certain of the class rates. The Commission at first suspended the supplements, and entered upon an investigation concerning the propriety and lawfulness of the advanced rates, but subsequently vacated the suspension, the investigation being still pending. The complainants, who are wholesale merchants in Salem, Oregon, aver that the supplement in question was not posted five days before the date it was to become effective, in the stations of the carriers, as required by law, and that upon enquiry, the station agents had informed them that the new rates were not yet effective.

The decision says

But whether the supplement was posted in the stations or not is a matter of no importance under the facts of this case. While the posting of tariffs is required by the act, and while a failure to post the same may subject the carries to penalties, the failure to obey the law in this respect does not invalidate the tariff when it has been properly filed with the Commission. It has been repeatedly held by the Supreme Court that the posting of rates as required by section 6 of the act to regulate commerce, is not a condition to making the tariff legally operative. . . . The requirement that tariffs be posted in depots, stations, and offices of carriers, was intended as a means of affording special facilities to the public for ascertaining the rates actually in force, and not as a condition upon which the legal operation of the tariff must depend. . . . In other words, publication is a step in establishing rates, while posting is a duty arising out of the fact that they have been estab-

lished. Obviously, therefore, posting is not a condition to making a tariff legally operative. Neither is it a condition to the continued existence of a tariff once legally established. If it were, the inadvertent or mischievous destruction or removal of one of the posted copies from a depot, would disestablish or suspend the rates, a result which evidently is not intended by the act, for it provides that rates once lawfully established shall not be changed otherwise than in the mode prescribed.

There can be no question that supplement 24, was published and filed with this Commission as required by law. This disposes of the present controversy. It is not alleged that the rates were unreasonable; their legality alone is assailed. It follows that the petition must be dismissed, and it will be so ordered.

72—

RATE SCHEDULES

REMOTE CONTROL OF TWO RATE METERS FOR OFF-PEAK SERVICE, Electrical World, March 29, 1913, p. 684.

The Jefferson, Iowa, Electric Company employs a two-rate schedule of commercial charges, applied to many installations in the business district, and to residences in which electric ranges are in use. Current is offered as follows:

Rate

8 cents per kilowatt-hour for peak load current.
3.5 " " " " " off-peak " "

Plus a

Service Charge.

40 cents per month.

The peak hours are:

May, June and July.....	7:00 p. m. to 10:00 p. m.
April and August.....	6:30 p. m. to 10:00 p. m.
March and September.....	6:00 p. m. to 10:00 p. m.
February and October.....	5:30 p. m. to 9:30 p. m.
November, December and January.....	5:00 p. m. to 9:00 p. m.

A number of two-rate meters have been improvised from ordinary single-phase induction-type meters by applying across the potential coils either the full rated voltage or a reduced voltage. This requires, of course, three service wires for each installation, but the third potential wire may be installed much more cheaply than the others, a No. 12 or No. 14 triple-braid weatherproof iron wire being sufficient for outside use.

The Jefferson company employs a 1100-volt, single phase distribution system, with secondaries operated as 110-volt two-wire circuits, one side grounded. For the two-rate meters the grounded side of the secondaries is connected to the series coils, so that the earth can be used, if desired, as one conductor on the potential service to the meters.

A special transformer connection furnishes the reduced potential, about 50 volts, necessary to make the speed reduction, in the required ratio, 110:50 : : 8:3.5 on the two-rate meters.

72—

RATE SCHEDULES

THE CLEVELAND, OHIO, MUNICIPAL LIGHTING DEPARTMENT has issued a bulletin giving a new schedule of rates for all consumers. The rates will be available for all customers with demands of 50 kilo-

watts and over, and for power users, at once, and for small consumers as soon as operation at the city's new large plant commences in the fall.

The maximum rate will be 3 cents per kilowatt-hour, and the lowest, 1 cent per kilowatt-hour, and these will apply alike to lighting and power, but certain reductions will be made for off-peak service, and also concessions on five-year contracts, to be announced later.

The charge will be based on a combination of the customer's demand, and the amount of current used, and may be determined by means of a chart devised by the constructing engineer of the plant, a copy of which will be on the back of each bill sent out in the future, on which the horizontal lines represent the average hours of use, and the perpendicular lines, the kilowatt capacity of service connection, or demand, and the intersection of these determines the rate.

A minimum charge of 75 cents per month will be made.

PUBLIC SERVICE REGULATION CALIFORNIA

226.3—Joint Service.

COMPLAINT OF TEHAMA COUNTY TELEPHONE COMPANY AND GLENN COUNTY TELEPHONE COMPANY vs. the PACIFIC TELEPHONE AND TELEGRAPH COMPANY, asking for physical connection. Decision of California Railroad Commission, ordering the physical connection to be made, and through routes and joint rates to be established. Jan. 30, 1913.

7—Service.

This is an interesting decision, requiring a physical connection to be made which will result in giving the local independent companies long distance service over the lines of the Pacific company. The Commission bases its decision on findings of fact including the following: that it was the poor quality of service of the Pacific company, and its failure to build into the country districts which necessitated the formation of the independent companies; that after the new companies had constructed their systems, and developed the new territory, the Pacific company then began to build out into the country districts and duplicate the lines of the independent companies, and that

It is clear from the evidence that the purpose of this duplication is to drive the independent companies out of business. Another device used to this same end, was to give free exchange service between towns which had not theretofore had such service; . . . and that after the advent of the independent companies the

[Pacific] company materially improved its service within the cities and towns. . . .

That the present service of the independent companies is superior to that of the [Pacific] company with reference to speed in reaching the party at the other end, the clearness of the sound, and quality of the service. . . .

That [as] the independent companies have over 1,000 subscribers who do not have telephones of the [Pacific] company, and . . . [who] would like to have long distance services, . . . these people are confronted with the alternative of continuing their present superior local service, without the advantage of long distance service, or of being compelled to take inferior local service so that they may be able to avail themselves of the [Pacific] company's long distance service, and . . . that the public convenience and necessity require the making of the connections as prayed for.

The order is to be complied with within thirty days, and if the companies can not agree, upon a division between them of the joint rates to be charged, and the rules and regulations to govern the service, they are to notify the Commission within twenty days, when a supplemental order will be issued covering these points.

MASSACHUSETTS

132—Protection from Competition.

Appeal by BUZZARD'S BAY ELECTRIC COMPANY from a decision of the selectmen of the town of Barnstable, giving permission to the Barnstable Electric Company, to construct a pole line system to supply electricity. Decision of the Massachusetts Board of Gas and Electric Light Commissioners annulling the decision and order of the selectmen. March 4, 1913.

The appellant company has been furnishing electricity for a number of years in adjacent territory to that covered by the permit to the new company, though it has not as yet extended its lines into the district in question.

The decision says

It is clearly the duty of the Buzzards Bay Company to supply throughout the town of Barnstable, as well as its other territory, electricity to whoever may reasonably require it, and there was no claim at the hearing that it lacked either the ability or the disposition to do this. The evidence was that where it had supplied, its service had been satisfactory.

Experience has shown that to supply such a scattered territory with a maximum of efficiency and economy, a single company with a properly located central station, is preferable to numerous companies with independently operated stations, each the center of a small area of supply.

REFERENCES

RATES

41—Cost of Power.

COST OF POWER TO MEET TACOMA BONDS, by A. L. THORN, and editorial, COST OF POWER, Journal of Electricity, Power and Gas, March 29, p. 295 and 299.

This gives in a table the cost per kilowatt-hour of energy produced by steam, and by water power, for different annual load factors, varying by increases of 5%, from 15% to 75%; and the corresponding selling prices, of the water power current, required to pay 6% on the investment. The computation is made on the assumption of a fixed annual charge of \$13.60 per kilowatt, plus an output charge of 0.5 cent per kilowatt-hour, for the steam plant, and a fixed charge of \$20 per kilowatt of demand, on the water power plant. The cost per kilowatt-hour decreases from 1.54 cents and 1.52 cents for steam and water power respectively, at a 15% load factor, to .71 cent and .31 cent respectively at a 75% load factor.

Overhead charges are put down as follows:

Item.	Per Cent Total Investment	
	Steam.	Water.
Interest	6.00	5.00
Insurance	0.50	....
Taxes	0.50	0.50
Depreciation	5.00	1.00
Obsolescence	5.00	1.50
	17.00	8.00

The editorial comment says that it is true that in the Tacoma plant, the permanence of the construction is a great factor in reducing obsolescence and depreciation, still it is doubtful if 1 per cent for depreciation, and 1.5 per cent for obsolescence, is anywhere near sufficient charges to allow for these important items, no matter how permanent the structure may be.

41—Cost of Service.

COST OF POWER PRODUCTION IN A REPRESENTATIVE CENTRAL STATION, by E. FREEMAN, Electrical Review, 1/3 page, March 29, 1913, p. 645. This is a summary of the operating costs of a steam generating station, with a rating of 5,325 kilowatts, in a city of about 110,000, for the year ending June 30, 1912. The service consists of 2,300-volt alternating current supply, and 500-volt direct current.

About 51 per cent of the company's output is taken by motor load, a gain of nearly six per cent compared to the business of the former year.

The net cost of manufacture per kilowatt-hour was 0.85 cent, which is a reduction of 3.4 per cent compared with that of the previous year. This cost does not include distribution, office expense and management, taxes and miscellaneous expense.

The tabulated data are as follows:

Cost of Manufacture for the Fiscal Year.

Kilowatt-hours generated at the switchboard.....	11,922,704
Kilowatt-hours sold	8,751,938
Kilowatt-hours power sales.....	6,132,177
Coal burned, tons	15,154
Average cost of coal per ton.....	\$4.06
Fuel cost (per kilowatt-hour 0.52 cent).....	\$61,531.21
Oil and waste	1,454.21
Water	3,637.76
Station wages (per kilowatt-hour 0.16 cent).....	19,831.32
Station building repairs.....	1,866.58
Steam equipment repairs	6,650.80
Electrical equipment repairs.....	5,465.35
Station tools and appliances.....	766.60
Total	\$101,203.83

41—Cost of Service.

FEATURES OF ELECTRIC RATE MAKING, by GEORGE L. HOXIE, Public Service, 1½ pages, April, 1913, p. 141.

This states that rate fixing is recognized as partly an engineering problem, causing commissions to employ competent experts, and to rely upon them for the technical information necessary for fixing just and reasonable rates. The three considerations indispensable for proper rates, are declared to be first, a proper return on the investment of the corporation, second, a proper apportionment of the total expenses between the different classes of consumers, and third uniformity of charges to all individuals of any given class. The paper gives a concise statement of the principles governing the working out of schedules of rates based upon the cost of service, discussing investment, franchises, going value, depreciation, and present value, which the author defines as reproduction cost, less straight line depreciation, of all physical and non-physical items of property necessary to the service sold.

411.2—Demand Charges.

The "Readiness to Serve" Charge Explained, Public Service, ¾ page, April, 1913, p. 145.

Compares the payment of attorneys and physicians by fees, which compensate for long periods of education, special training and practical experience, instead of by wages, which take account of the actual time spent in the service, to the "readiness to serve" charge of a utility company, which is made in order to cover the cost of the fixed investment used in maintaining the preparedness and equipment for giving service at all times, and to the maximum demand of the installations, though the whole plant with its costly machinery for meeting this demand, is in actual use but a part of the time.

61—Character of Service.

ELECTRIC ENERGY IN THE COEUR D'ALENES, by JOHN B. FISKEN, summary of paper presented before Engineering Societies Convention, Spokane, Wash., Feb., 1913, and editorial, ELECTRICITY IN MIN-

ING, Journal of Electricity, Power and Gas, 4 pages, March 29, 1913, p. 287 and 299.

The paper gives a report, with illustrations and a map, of the development and present operation of the installations in the mines of this district, the power being supplied by the Washington Water Power Company, with descriptions of the transmission system, substations, patrol measures, and some of the difficulties met and overcome in originating this service, as in designing the line the problems were all new, and there was an entire lack of any kind of standard construction, the transmission line to the Coeur d'Alenes being one of the earliest long distance lines in this, or any other country, to furnish 24 hours a day regular service.

The editorial makes an interesting comparison between the methods adopted in this region, and elsewhere, for getting rid of the uneven jerks in load, one of the most serious troubles of the early mine operations by electricity, and mentions the various means by which steadying of power factor has been attained in this industry, and throughout the hydroelectric networks of California.

61—Character of Service.

WOODWORKING PLANTS AS CENTRAL STATION CUSTOMERS, editorial, Electrical Review, March 29, 1913, p. 634.

The various wood working industries, which are very great in point of numbers, offer a large field for central station power, which has been but little developed as yet owing largely to the facts that such factories produce refuse which is available for fuel, and that steam is necessary for dry kilns during the entire year, and in many plants for heating during the winter. But central station power has nevertheless been proved to be cheaper to some of these establishments, and a good market easily found for the refuse.

The utilization of waste is the point upon which the whole question hinges. At frequent intervals announcements are made by engineers and scientists, working independently, relative to the successful distillation of wood, and it is now believed that it is commercially feasible. Some organized effort should be extended by the electrical fraternity, preferably the National Electric Light Association, looking to the thorough investigation of the possibilities in wood distillation in particular, and the utilization of wood waste in general. The concrete benefits to central stations from success in such efforts would be enormous.

61—Character of Service.

THE FARMER AS A CONSUMER OF CENTRAL STATION POWER, by H. W. YOUNG, Electrical Review, 1 page, March 29, 1913, p. 667.

Discusses the advantages and economies, and the increasing number of uses, of electric service in farming operations. At a low investment and maintenance cost for outdoor types of substations, properly distributed over a given area, a transmission system can serve a large agricultural region, and a new business be developed which will be of profit to the central station, and of the greatest benefit to scientific agriculture, and the material improvement of the entire community.

61—Character of Service.

ELECTRIC FIRELESS COOKER AS A DAY LOAD BUILDER, Public Service, 1 page, April, 1913, p. XVIII.

Describes the convenience and cheapness of cooking with electric fireless cookers, and tests which show the extremely low current consumption for cooking several staple articles of food.

61—Character of Service.

ELECTRICITY IN MACHINE SHOPS, illustrated article, Electrical Review, 5½ pages, March 29, 1913, p. 639.

This article discusses some of the more important advantages of motor drive in machine shops, and gives tables of data from six such installations.

PUBLIC SERVICE REGULATION**2—Public Service Regulation.**

EXPERIENCES OF A COMMISSIONER; WHAT THE STUDY OF UTILITY REGULATION TAUGHT ONE REGULATOR, by JOHN B. OLMSTED. Public Service, 1 page, April, 1913, p. 129.

This is an abstract of the address of a former member of the New York Public Service Commission (2nd D.), mentioned in 3 RATE RESEARCH 15.

2—Public Service Regulation.

WORLD-WIDE COMMISSION REGULATION, editorial, Journal of Electricity, Power and Gas, March 29, 1913, p. 298.

Notes the growth of the idea and practice of regulation of public utilities by Commission, which has spread so rapidly in the West in late years, and states that the present world-wide trend is protest against special privilege and unregulated monopoly, with the corresponding constructive aim, to produce the world's supply of human necessities at the least cost of human effort; and that this will ultimately lead to the evolution of international regulation of the enterprises which affect the great countries of the world. Our policy in the matter of Panama Canal rates and tolls, is a case in point, as sixteen countries will be deeply affected by the opening of the canal to the world's commerce. Many believe that The Hague Tribunal will be the proper body to possess such jurisdiction, when experts of trustworthy powers and the highest integrity will be needed to regulate such affairs.

261—Public Service Bills.

MAINE PUBLIC UTILITIES COMMISSION, Electrical World, March 29, 1913, p. 657.

A bill to create a public utilities commission has passed the Maine Legislature. It closely resembles the Wisconsin Act. The Railroad Commission and the State Water Storage Commission are abolished, and the new commission will have the regulation of all the public utilities, including municipal plants, in the State.

INVESTMENT AND RETURN**3—Investment and Return.**

NEW YORK COMMERCIAL, PUBLIC UTILITIES SECTION, Dec. 14, 1912, 72 pages.

This special number of the New York Commercial, is devoted entirely to public utilities in all parts of the United States. It contains several articles on the different important aspects, and present developments in public service, including an interesting interview with Thomas A. Edison; a table, of five pages, of public utility bond and stock quotations, and yield thereon to investors; and

maps and analytical reviews of twenty-three of the largest electric light, power, and traction companies in the country.

3—Investment and Return.

THE RELATIVE SECURITY OF SECURITIES, statement issued by Henry L. Doherty & Co., 60 Wall St., New York City, *The Gas Age*, 11½ pages, March 15, 1913, p. 293.

This article shows by graphic charts and curves, with explanatory text and figures, for gas and electric companies, national banks, railroads and industrials, comparisons of the percentages of capital in the hands of receivers, comparative amounts per \$100 in hands of receivers, and comparisons of gross and net earnings of each, for the past ten years.

31—Valuation.

THE VALUE OF VALUATION, editorial, *Electric Railway Journal*, March 15, 1913, p. 449.

Comments on the new federal railroad valuation law requiring the Interstate Commerce Commission to make valuations of the property of all interstate railroads, telephone, telegraph and express companies, and states that it is a large order, and it is more than likely that the radicals who have demanded this valuation, undertaking to prove that the railroads are over-capitalized, will, after it is all over, be greatly disappointed with the results. The undertaking will cost a lot of money, and nobody will be much better off when it is finished. An army of men will have put in several years' work, and it is estimated that something like \$6,000,000 will have been expended by the government and the carriers. It claims that the results will not justify this expenditure of time and money, but it may be hoped that the mania for valuation will have been satisfied.

313—Prices.

ROADS AND STREETS, *Engineering and Contracting*, 161½ pages, April 2, 1913, p. 373.

This gives tables of information of the average unit prices of pavements, constructed in 1912, in 568 cities of the United States and Canada. The data are tabulated from facts furnished by officials of the cities, and include local prices for labor and materials; and much valuable practical information of different types of paving is given in the text.

315.1—Going Value.

PROPER RECOGNITION FOR GOING VALUE, editorial, *Electric Railway Journal*, 1 page, March 22, 1913, p. 533.

States that the extra hazards, particularly in Far West cities which are still in their making, of investments in electric street railways, due to the uncertainty of movement of population, as well as to obsolescence, require that full recognition be given to going value, and opportunity to earn returns commensurate with the risks taken, be allowed in this industry, for otherwise ready capital will not be forthcoming, and the development of these communities will be greatly retarded, as this is dependent on good traffic facilities, and upon a supply of light and water.

36—Depreciation.

DEPRECIATION ESTIMATES, by EDWIN GRUHL, AERA, 10 pages, March, 1913, p. 644.

This paper summarizes the theories for estimating actual depreciation. It states that the reason for the unsatisfactoriness and wide divergence of calculations of depreciation is, that the most qualified expert, being the engineer or accountant in charge of the utility under investigation, is viewed as an interested or biased witness, and as few experts possessing the experience and broad judgment necessary to give mere opinions weight in appraisal cases, can be found who are not actively interested in public utility undertakings, expert testimony has been unreliable. The various methods of computing depreciation, consideration of life tables, averages, actual inspections, etc., are discussed, and the paper points out the necessity for regularly recorded experience data as to life of equipment in service, and gives curves, summarizing such information, showing the rate of depreciation of incandescent lamps, water works pumps, and cast iron wheels; and advocates the mortality curve method of determination, this way of charting observations being identical with that used by actuaries in determining the expectancy of life of human beings. This method is described and illustrated by curves, and its advantages over the other methods are stated.

372—Employee Profit Sharing.

PROFIT SHARING, editorial, The Gas Age, March 15, 1913, p. 286.

Calls attention to the practical advantages of sharing profits with employees; and gives the figures of such practice by English gas companies, which started twenty-two years ago, and is now in use by thirty-five such companies, the amounts paid to employees in this way ranging from $8\frac{1}{4}$ per cent on their wages, downward. The financial gain to companies from such an arrangement is quickly demonstrated in experience.

382—State Taxation.

ALL CONCERNS SELLING ENERGY MUST PAY TAX AS UTILITIES, Electrical World, March 22, 1913, p. 613.

Reversing the ruling made by former Attorney-General U. G. Denman, Attorney-General T. S. Hogan, his successor, has rendered an opinion to the State Tax Commission of Ohio, to the effect that all companies, firms or individuals which sell energy, whether excess, or from their regular business, should be classed as public utilities, and pay the excise tax on their gross receipts. Both Cleveland and Cincinnati have a large number of companies which sell energy to neighboring concerns but do not make this their main business. They will be compelled to pay the excise tax just as if they were engaged exclusively in selling energy. The tax commission has held this view all along, and this is the reason why an opinion was asked the second time.

MUNICIPALITIES**83—Municipal Ownership.**

SECOND NATIONAL ELECTRIC LIGHT ASSOCIATION ANALYSIS OF NEW YORK HYDROELECTRIC PLANS, by ARTHUR WILLIAMS, Chairman of the Public Policy Committee, N. E. L. A., Electrical World, 1 page, March 29, 1913, p. 659.

This article points out the alleged unsoundness of the claims made by the New York Conservation Commission, in its arguments for state financing and

operation of hydroelectric development at the Crescent and Vischer's Ferry dams. It is stated that the fixed charges on the project would alone amount to \$20 per horse power year, although the power has been promised to municipalities at a price of from \$7.50 to \$10 per horse power year. The complete hydroelectric plans of the Conservation Commission call for an outlay by the State and its municipalities of from \$300,000,000 to \$600,000,000, opening, it is suggested, enormous grafting possibilities.

The public buildings at Albany are furnished with energy from a State plant which cost \$777,000, although its equipment should have been purchased for \$150,000.

It is further declared that the power available has been greatly overestimated and the ultimate scheme would appear to be, under the guise of natural-resource conservation, the building of large auxiliary steam power plants, necessitating even higher fixed charges, the difference between actual return from investment at \$7.50 to \$10 per horse power, and the greater actual cost to be met by taxation of the entire State in order to benefit a few interests. It is pointed out the better policy would be the leasing by the State of these powers, under competition, to the highest bidders, subject at all times to State control and regulation, or adopting such measures as are to be followed by the national government in leasing the water-powers of the country.

The Merchants' Association of New York City has also filed an emphatic protest against the Murtaugh-Patrie bills, framed to authorize this scheme, urging that not one-quarter of the people of the State can be supplied with this artificially cheap electric service. All the rest of the State and its people will be heavily discriminated against. By reason of the State bonus granted them (estimated at one-half the present cost of energy), manufacturers and merchants in the favored localities will have a great advantage over their competitors in non-favored districts, in the cost of their products.

GENERAL

735—Technical Data.

COMPARATIVE ENERGY CONSUMPTION ON THE SPIETZ-FRUTIGEN RAILWAY, *Electrical Railway Journal*, March 15, 1913, p. 509.

Tests were made recently of energy consumption on about eight miles of track of the above railway in Germany, for three different types of electric locomotives, one of Swiss and two of German manufacture, and the results are here given in a table. The figures show that the series motor appears to be superior to the repulsion motor from the standpoint of economy in energy consumption, and more particularly at starting.

78—Adequacy and Efficiency of Service.

PROPOSED INVESTIGATIONS FOR INDUCTIVE INTERFERENCE, *Journal of Electricity, Power and Gas*, 13 $\frac{3}{4}$ pages, March 15, 1913, p. 254.

At the instance of the California Railroad Commission, a conference of the electric power companies, and the telephone and telegraph companies met, and formed a joint committee to conduct tests and experiments on inductive interference, the results of which may serve as a basis for future regulations of the Commission. The committee is composed of five representatives of the power interests, five of the telephone and telegraph interests, one of the railroads, and four appointed by the Commission. This article gives outlines of the tests which are to be made, and an outline of the different conditions of the power circuits under which tests should be made; and states that it is the intention of the joint committee through the sub-committee on publicity, to furnish to the technical

press from time to time such information as may indicate to the engineering public, and to the corporations concerned, the nature of the work being undertaken, and the results obtained, the object being the information of the companies, and of the engineers of the country, with the expectation that they will show an interest in the work now being done in California, by such constructive criticisms and suggestions, as will further the work of the joint committee on inductive interference, and that in the end all sections of the country may profit by the results of their labors.

98—Public Relations.

PUBLIC RELATIONS; CREATING FRIENDSHIP FOR UTILITY COMPANIES BY THE USE OF EDUCATIONAL PUBLICITY, by H. J. GONDEN, abstract of an address delivered at the 1913 convention of the Illinois Gas Association, Chicago, March 19 and 20, Public Service, 4 pages. April, 1913, p. 125.

Calls attention to the need of carrying out the measures for publicity, notably newspaper advertisements, interesting and well written, which all public utility managers believe in, and which have been demonstrated to be beneficial to the companies, but are not being as actively and continuously used as the present unfavorable public opinion towards utilities demands. The forces of publicity have heretofore been mainly turned against the public service corporations, which have suffered great injury in consequence, but the potent effect of friendly public sentiment as an influence in companies' affairs may be enlisted by expert, carefully planned, skillful presentation in the public press of pertinent facts relating to the service and business of the utility, if this policy is persevered in as continuously as the attacks from hostile sources have been in the past.

98—Public Relations.

PUBLIC UTILITY COMPANIES AS GOOD CITIZENS, by WILLIAM H. HODGE, address delivered before the convention of the North Dakota State Electrical Association, July 16-18, 1912. The Gas Age, 13 $\frac{3}{4}$ pages, March 15, 1913, p. 298.

This paper gives a brief sketch of the development of public utility enterprise in the United States, noting that in the electric light and power field alone, an industry has been built up in the last thirty years, from nothing to a present investment of not less than two billions of dollars. Numerous examples are given of the present day policy of public utilities, to improve, extend and cheapen their service, to use frank, honest and open, as well as courteous, business methods, and showing a sense of the obligations of good citizenship by joining in every public spirited and humanitarian effort in the community for its general advancement and welfare, and by taking measures for the improvement of the morale and well-being of its employees.

It states that the work which public utility companies are doing toward making life pleasanter, making communication easier, lightening labor, conserving fuels, relieving the congestion of cities, enabling factories to reduce operating costs and to increase output, destroying the smoke evil, advertising cities and enterprises, ministering to the comfort and convenience of all, is useful work and worthy of its hire. It is a dignified occupation and ranks high among the myriad factors of today's complex civilization.

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No. 3

RATE RESEARCH



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CONTENTS		Page
PUBLIC SERVICE REGULATION		35
New York		35
Massachusetts		36
Georgia		40
California		40
Wisconsin		41
Wisconsin Experience with Municipal Plants		41
COURT DECISIONS		43
Alabama		43
Oklahoma		43
New York		44
REFERENCES		45
Rates		45
Investment and Return		47
General		48

Rate Research

Vol. 3.

CHICAGO, APRIL 16, 1913

No. 3

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

PUBLIC SERVICE REGULATION

NEW YORK

132—Protection from Competition.

APPLICATION OF THE LONG ACRE ELECTRIC LIGHT AND POWER COMPANY for authority for a stock and bond issue. Granted by New York Public Service Commission (1st D.), March 5, 1913. Dissenting Opinion of Commissioner Milo R. Maltbie, concurred in by Commissioner John E. Eustis.

This is a clear presentation of the facts and principles involved in this case, an abstract of which was given in 2 RATE RESEARCH 260, and in regard to which the latest Commission decision was reported in 2 RATE RESEARCH 386.

The various court and commission decisions which have been issued from time to time in this case, in the company's effort to secure legal recognition of its franchise, and to obtain permission to issue stocks and bonds, and to begin construction of an electric plant and transmission system, to be operated in New York City in competition with the Companies already installed and supplying electric service there, are set forth. The Dissenting Opinion claims that these previous decisions remove all ground for doubt that the action of the Commission granting permission for a stock and bond issue is without warrant of law, and will not be sustained.

In conclusion the opinion says:

What evidence, what "new and substantially changed conditions," warrant a reversal of the previous determination which this Commission had unanimously made, and which the Court of Appeals had but recently affirmed?

What facts or provisions of law warrant the cryptic conclusion that the Long Acre company "has the present and absolute right to construct an electric plant in the City of New York," in view of this Commission's unanimous decision that the Long Acre company has no such right, and in view of the decision of the Court of Appeals that the records of the Commission did not evidence any such right?

EDITORIAL NOTE.—All indented matter is direct quotation.

There are fundamental questions of public policy at the bottom of this case. I am not concerned for The New York Edison Company; that company is abundantly able to protect its interests. But I am concerned for the interests of the public, and of the consumer who will have ultimately to "foot the bills" and, indirectly but surely, pay for the duplicate plant built by a "competing" company. Competition in the electric lighting business in the City of New York is as impossible in fact, as it is unsound in economics. If the last quarter of a century has demonstrated any fact, it is that competing electric-light companies are formed only to be swallowed up, and the cost charged to the public. The Legislature of this state has taken an advanced position upon the subject of regulation of public utilities, and has favored regulation over against unbridled attempts at competition, and the reckless duplication of plants. The highest court of the state has sustained this policy. It would indeed be unfortunate if this case were to lead to any breaking down of these salutary standards of public policy which the Legislature has declared and the courts have approved.

COMMISSION DECISIONS—MASSACHUSETTS.

3—Investment and Return.

COMPLAINT AGAINST THE ATTLEBORO GAS LIGHT COMPANY CORPORATION, ATTLEBOROUGH (pop. 16,215), alleging excessive rates for gas. Decision of the Massachusetts Board of Gas and Electric Light Commissioners, reducing the rate from \$1.10 to \$1 per thousand cubic feet. Feb. 7, 1913.

The most important points of the decision are,

Since January, 1899, although deductions amounting to \$37,732 have been made through charges to depreciation, its books show a net increase in plant value, on account of expenditures for additions, of \$89,682 in excess of the amount realized from the additional capital stock. Its current assets have also increased by \$17,655, and on June 30, 1912, the book value of its plant was \$157,372.89, with current assets of \$35,749.47, or a total of \$193,122.36, against which it had outstanding no liabilities other than its capital stock [\$72,500]. During this period it has paid regularly annual dividends of 12 per cent., and in 1910 an extra dividend of 10 per cent., claimed to represent income accumulated during several years from certain portions of land owned by the company, not used in its business, and leased to others.

34—Rate of Return.

The new corporation being so closely identified with the old association that the two constituted virtually one continuous concern, the features of their financial history, to which reference has been made,

led in the hearing to a consideration at some length, of the question of a reasonable return. The proposition so clearly stated by the Federal Supreme Court, that a company of this character is entitled to a reasonable return upon the value of the property which it is actively and necessarily employing for the public convenience, has been everywhere accepted as just and reasonable. For fundamental reasons, no statement of equal authority has been laid down as to the amount, rate, or percentage, which constitutes such return, since it must evidently be affected by the time, place and conditions under which the question arises. Neither, so far as we are aware, is there any generally accepted and adequate rule, by which the value of the property for this purpose must be determined.

35—Revenue, Expense, Income.

Since a company must make rates in advance, in attempting to provide for dividends, and a reasonable strengthening surplus, it is impossible to see clearly, and with certainty at the time, what the company's business may develop. Surplus earnings so obtained have, however, quite different characteristics from those where rates are made in advance for the express purpose of providing, out of profits, plant investment, which otherwise would come from the contribution of the shareholders. A prudent management will seldom distribute in dividends all of a company's apparent profits. Where, in a brief term of years, a large percentage of the plant investment appears to have been procured out of profits, or exceptionally large dividends have been declared, a suspicion naturally exists that prices have been unreasonably high, and a belief arises that the consumer has, therefore, acquired some equitable interest in such surplus.

Where a company performs a public service with a proper conception of its public duty, surpluses of this character are not likely to develop. While an investment made for the public benefit may prove of public advantage from whatever source it is derived, no company ought to profit by conduct based upon a false notion of its public relations. These statements must, of course, be taken as applying to an actual and not a merely apparent surplus, although this distinction can often be correctly made only by a thorough knowledge of the company's affairs. While such surplus may be due in some measure to skill and foresight in the management, it may be, and often is, due in part, to the general growth and prosperity of the community in which the company is located. The value of the former to the community, may well be liberally recognized, but some recognition of the latter may, with equal justice, be accorded the public. This company has grown and prospered along with, and in large measure because of, the growth of the community in which it is located. While it has been prudently and skil-

fully managed, its officers would doubtless concede that a portion of its prosperity is clearly the outcome of the prosperity of the town in which it is located.

32—Appreciation.

There is a growing recognition of the truth of the proposition that a public-service company is not entitled to a return upon the unearned increment in value of its real estate, but investment out of profits which it has been able to make solely through the general growth of the community which it serves, has many similar attributes. It will commonly be found that a company's surplus is based on managerial skill and foresight, needlessly high rates, or the general prosperity of the community, or, more frequently, to two or more of these combined; and while it may be difficult to determine what proportion is justly attributable to any one of these causes, there can be little question that the general growth of the community is an important factor. Whether because of a recognition of this principle, or due to some other, it has been unlawful for many years in this State, for a corporation of this class to represent its surplus in new capital by a stock dividend. It is difficult to see why the reasonable amount of return, or the reasonable rate of return based upon the full value of the company's property, should not be affected in the same manner, by that portion of the investment made from what may be termed the unearned increment in its profits, as by the unearned increment of value in its real estate; in other words, the reasonable rate of return upon a company's entire investment is lower, where an appreciable part is derived from the two sources described, than where it is entirely derived from the contributions of the shareholders in their payments for its stock.

36—Depreciation.

A reasonable and fair provision for depreciation is a matter of so much importance that the Board has given special consideration to the claim of the company that 4 per cent. upon its entire plant, ought to be allowed for this item. Taking the total valuation of the company's plant as shown upon its books, and which, in view of the company's method of accounting, may not be an unreasonable figure, we find that this may be divided into four items: land, mains, meters and other structures. In a growing community like Attleborough, land centrally located, like that of this company, can hardly be considered as depreciating at an annual rate of 4 per cent. There are indications in the company's record and accounts, that it has materially increased in value since it was purchased. In view of the well-known long life of cast iron mains, there seems to be a general consensus of engineering opinion that, where such mains are kept in proper repair, a depreciation allowance of less

than 4 per cent. is ample for that part of the company's plant. Liberal provision for renewal of meters condemned or otherwise lost, as well as ordinary repairs, has been provided for through operating costs. If the works are to be built on a new location and the present plant or works abandoned, depreciation of that portion of the company's investment will be rapid and complete. Even then the fair value of the remaining plant will substantially exceed all the investment made by the stockholders. It is therefore difficult to see why the large depreciation now impending of this part of the plant has not already been amply provided for out of the prices heretofore charged, and the income already obtained thereby. Provision in any future price for depreciation, made under the conditions now prevailing in this company, may properly, therefore, be largely confined to the mains and the new works not yet built. . . .

92—Economy and Efficiency.

In the determination of the price, but little consideration has been given to the claim, that the pay of certain officers of the company, might be reduced to secure the reduction; other more important questions have engrossed the Board's attention. A study of the company's history, as revealed in its corporate records, indicates that its affairs have been managed with fidelity, economy and integrity, and that there is no sufficient reason to assume that the public has suffered from extravagance of any kind. Notwithstanding the fact that stock dividends, to a certain extent, may have been made, when such practices were not uncommon, and at a time when they were not forbidden by law, its capital, in proportion to its business, ranks lowest of the gas companies in the State. In other words, it requires a smaller portion of its price to pay the same rate of dividend than any other company,—a fact contributing in a marked degree to its ability to maintain the price named.

34—Rate of Return.

The Board believes that the price hereinafter named is sufficient to yield, in addition to reasonable operating expenses, a suitable allowance for depreciation, and a reasonable return upon the value of the property actively and necessarily employed for the public convenience. . . .

72—Rate Schedules.

The Board recommends that on and after the first day of March next, the net price for gas supplied by the Attleboro Gas Light Company Corporation shall not exceed \$1 a thousand feet.

GEORGIA**132—Competition.**

THE MACON RAILWAY AND LIGHT COMPANY AND THE GEORGIA PUBLIC SERVICE COMPANY having entered into competition, and lowered their rates for electric service, are prevented by a standing order of the RAILROAD COMMISSION OF GEORGIA from raising the rates to normal without the consent of the Commission.

The ruling covering this point is contained in General Order No. 14, of the Railroad Commission of Georgia, of date December 23, 1909, and has been in effect since its date. The pertinent part of this order is as follows:

All rates now in effect, or which may hereafter become effective, which are not higher than the maximum rates prescribed by this Commission, whether such rates are the result of voluntary action upon the part of any company, corporation or person, subject to the jurisdiction of this Commission, or otherwise, are hereby established as the rates of the Railroad Commission of Georgia, and no such rates shall be discontinued, nor raised, without the consent of the Railroad Commission first being obtained, but all such rates shall continue in force without hindrance, the same as other rates prescribed by the Commission.

CALIFORNIA**335—Issues of Stock and Bonds.**

Application of the HALF MOON BAY LIGHT AND POWER COMPANY for permission to accept promissory notes for sale of part of its capital stock. Decision of the California Railroad Commission granting the application. Feb. 7, 1913.

In a previous order the company had been authorized to issue additional capital stock, at a par value of \$25 per share. It had accepted notes in payment for some of the shares, and the discount on these, plus the commission paid for selling the stock, had reduced the amount realized by the company below \$20.00 per share, the net price specified in the Commission's order.

The present order grants permission as asked for, to take in payment, where it is found absolutely necessary, notes bearing interest at 6 per cent, and to discount them in such an amount as is necessary, the sale to net the company not less than \$20 per share, of par value of \$25.

139—Limitations to Service.

Complaint against the SOUTHERN CALIFORNIA MOUNTAIN WATER COMPANY for refusal to supply water in certain districts within its designated region of operation. Decision of the CALIFORNIA RAILROAD COMMISSION discussing the complaint. Jan. 21, 1913.

The Commission decides that the protection of the rights of the users of water on the company's available supply should be reserved to them, and not shared with the complaining prospective consumers, for irrigation purposes; and further rules that the fact that the petitioners have another supply available to them by pumping, is relevant and to be considered.

The decision gives a review of the law covering the appropriating and delivery of water by a public service corporation, and a discussion of rights and principles, including priority of claims, and ratable apportioning in cases of scarcity.

WISCONSIN

72—Rate Schedules.

Investigation by WISCONSIN RAILROAD COMMISSION, on its own motion of the rates, rules and regulations of seven companies furnishing electric current in Milwaukee. Opinion and Decision of the Commission, Oct. 24, 1912.

This is a supplementary order in the above case, reported in 2 RATE RESEARCH 175, and prescribes a change in the demand charges for commercial lighting and power service.

The order states:

Further investigation discloses inequalities in the relative proportion of demand and output charges, and from such analysis as has been made of demand cost it appears that a corresponding reduction in the maximum demand rates is reasonable and equitable.

The charges originally ordered were:

Demand Charge:

\$42 per year for each kilowatt of demand of the first	10 kilowatts.
30 " " " " " " " " " next	50 "
24 " " " " " " " " in excess of	60 "

The new charges are:

Demand Charge:

\$36 per year for each kilowatt of demand of the first	10 kilowatts.
30 " " " " " " " " " next	50 "
24 " " " " " " " " " " next	140 "
18 " " " " " " " " in excess of	200 "

WISCONSIN EXPERIENCE WITH MUNICIPAL PLANTS

83—Municipal Ownership.

COMMISSIONER ERICKSON, in the discussion of his address before the Joint Meeting of Western Society of Engineers, and the American Institute of Electrical Engineers, Chicago, March 24, 1913, abstracted

in 3 R. R. 9, made the following mention of the experience of the Wisconsin Railroad Commission with municipal plants:

Something has also been said about state control of municipally owned utilities. The Wisconsin Commission has control over the rates and service and other practices of municipally owned plants. The City Councils still have the power to regulate the service, but they do not have the power over the rates. Whether municipally owned plants should be subject to state regulation, is a question that is in controversy almost everywhere. It is a fact that municipally owned plants need regulation fully as much as, and even more than, privately owned plants. Relatively more complaints are received by us affecting municipally owned plants than privately owned plants. Of municipally owned plants the accounts are poorly kept. Their rates are often discriminatory to a greater extent than is the case with privately owned utilities. The rates are put in apparently in a haphazard way, without much regard to cost of the service, and often largely for political reasons. That is also true of the service. That is, the service while at times good, is frequently open to very serious objections. I am not making these statements because of the fact that the matter is discussed, and is of a controversial character, but I am making them because they are facts. There are very few municipally owned utilities in the state that have not been hauled up before the Commission at least once, and in going through their records it is very difficult to get any line on their business. They usually keep their accounts mixed up with other business of the city. Everything goes into the general fund, and the money received from the utility is often used for any purpose that the city officials may choose to use it for. Incomplete or no records are made of the amount of water or current used by the city. There is often no reliable way of telling either the quantity or the service furnished, or what has been received for it.

The Commission has been very lenient in matters effecting municipally owned utilities. We have tried to nurse them along the best we could, and even when complaints are pretty thick we sort of do the best we can in smoothing things over.

Of course, in the case of a large public utility, such as the Milwaukee Water Works, the situation is much better. That plant is in the hands of a competent superintendent, who seems to know his business, and who is really doing very good work. In the small cities, however, the plant is very seldom in the hands of men trained in the business, or who know much about the utility business. The administration of the plant is usually changed with changes in the administration of the city, and instead of there being an engineer or somebody who has experience in charge, they very often put a good politician in charge.

COURT DECISIONS—ALABAMA

58—Terms and Conditions.

BIRMINGHAM RAILWAY, LIGHT AND POWER COMPANY V. ABBOTT, action by T. Jones Abbott against the Birmingham Railway, Light and Power Company, for trespass. Judgment for plaintiff, and defendant appeals. Reversed, and remanded. Decision of Court of Appeals of Alabama, Jan. 23, 1913. 60 Southern Reporter, 970.

The complainant charged trespass by company's employe having wrongfully entered his residence to disconnect the electric wires. The judgment is in favor of the company, on the point of law that the complaint failed to state the consideration for which the company agreed to furnish electric light. The reason for discontinuing the service is not here stated.

OKLAHOMA

244—Rehearings and Appeal.

OKLAHOMA RAILWAY COMPANY V. STATE. From an order of the Corporation Commission fixing rates of the Oklahoma Railway Company, the latter appeals. Reversed. Decision of the Supreme Court of Oklahoma. Feb. 11, 1913. 130 Pacific Reporter, 151.

The Commission ordered the reduction of street railway fares for all students attending a college, at a distance of 9.6 miles from Oklahoma City, from 15 cents to 10 cents single trip, and round trip tickets to all passengers at 25 cents. The Commission was of the opinion that the reduction would benefit the company by increasing travel on this line, which at present is not paying over two-thirds actual operating expenses.

The Supreme Court reversing the Commission says

"This is no substantial basis for the order. But opposed to this is the uncontradicted evidence . . . as follows: "That line is being operated, and, with the possible exception of June, July, and August, has been operated ever since it opened at a loss." . . .

And so we say that, as this order is based upon testimony merely expressive of a desire for the rate, and in opposition to uncontradicted evidence, in effect, that such a rate, if enforced, would compel appellant to operate at a still greater loss, the same is unreasonable and unjust.

NEW YORK

22—General Powers of Commission.

In the matter of the Application of the directors of the Frontier and Western Railroad Company, for an order directing the Public Service Commission, Second District, to issue certificate of public convenience and necessity. Determination of the Public Service Commission overruled, and application remitted to the commissioners, for their consideration. Decision of New York Supreme Court, Appellate Division, Jan. 8, 1913, 139 New York Supp. 627.

In the hearings before the Commission, on this application by the Frontier and Western Railroad Company for certificate of public convenience and necessity to build an additional line of road, bitter opposition developed to the location of the route for the proposed extension. It was eventually suggested by the Commission, that it might be possible to adopt a different route, and thereafter two different routes, each varying materially from the first, were considered, but the Commission finally refused the certificate, because of its conclusion that, as a matter of law, it had no right to consider any other route than the first one submitted, which had been made part of the application.

The decision says:

This court has reached a contrary conclusion as to the powers of such commission, but we do not deem it advisable to pass upon the question of public necessity and convenience, although we undoubtedly have the power to do so, until the Commission shall have passed upon that question, in the exercise of the more plenary powers which we here hold it to possess. . . .

It is further urged that our conclusion removes from the Commission all control over the selection of the route, and that such is contrary to the spirit of the statute. The answer to this suggestion is afforded by the statute. Railroads, like other corporations, are the creatures of the statute, and the Legislature in creating them had ample power to limit their powers, and grant them privileges, in such manner as it deemed best. This supervisory power it could lawfully delegate to the Commission, for the accomplishment of any desired constitutional purpose, but we are not at liberty to enlarge upon those delegated powers, or to infer their existence, when they are not declared or necessarily implied, in reaching the avowed aim of the statute. The aim of this statute is plainly declared, and as plainly limited to, the consideration of the route as described in the incorporation certificate, and we are not to infer that more specific control over the route was intended to be vested in the Commission.

We therefore hold that upon application for a certificate of public convenience and a necessity, by a steam railroad corporation, the

question of such convenience and necessity is to be determined with reference to the railroad as identified in the articles of incorporation of such company, and that, upon such determination, the Commission has the right to consider any route or routes, which do not vary the location of the road as identified in the articles of incorporation.

REFERENCES

RATES

61—Character of Service.

OBSERVATIONS ON HORSE AND MOTOR TRUCKING, by H. F. THOMSON, and HAROLD PENDER, a paper presented before the Electrical Vehicle Association of America, New York, March 25, *Electrical Review*, 2½ pages, April 12, 1913, p. 774.

This gives tabulated cost data on six different kinds of delivery service, for three types of power, horses, electric trucks and gasoline trucks. The costs per mile of the electrics vary from 25 cents, for parcels delivery, to 45 cents for 5 ton coal delivery. In considering these comparisons it will be noted that for the light cars, such as the 1,000 pound rating, the superiority over horse wagons in so-called suburban service is extremely marked. This is work where hauls of considerable length exist between the points of loading and of beginning distribution. In a limited territory, such as within a four-mile radius of a loading point, the superiority of the motor cars over horse wagons increases to a marked extent with the size of the load, therefore service requirements are as important a factor in determining costs, as the type of the vehicle selected.

61—Character of Service.

CENTRAL STATION POWER FOR COAL MINES, by C. W. BEERS, *Proceedings of the American Institute of Electrical Engineers*, 11 pages, April, 1913, p. 835.

This gives data on electrical installations in coal mines, and discusses the several factors which make purchased power from a large central station, more economical than an isolated plant. It gives valuable practical information of the correct design in putting in central station supply for colliery operations, with studies of load factors, reports on cost per kilowatt of installation, and an itemized table of fixed charges, and of operating costs per year per kilowatt. The result of a number of calculations on mines so equipped with power, up to, and including 1500 kilowatt capacity, are summarized in the following table:

Cost per kilowatt installed.....	\$110.07
Fixed charges per kilowatt per year.....	19.00
Operating charges per kilowatt per year.....	16.11
Net cost per kilowatt-hour at switchboard.....	.008
Load factor	50%

The question of rate making was one to receive thorough attention by the company and mine managers in drawing up recent contracts for this service. Current could be paid for either on the "straight maximum demand basis plus cost per kilowatt-hour," or on a varying rate depending on the load factor. The latter plan was argued and adopted, because it is a simpler method of handling all charges. It eliminates errors due to wrong reading of graphic meters, and hence prevents arguments as to the demand. To the ordinary mind, it presents the idea of cheaper rates in a clearer manner than rates based on the

demand system, as the only point to be observed is that the greater the load factor the less the rate; whereas the straight demand system has a tendency to curtail consumption due to the fact that the demand power may at times be cumulative, and hence the operator may feel worried as he sees the increase on his demand chart, although his kilowatt-hours may not increase.

The contract to be of benefit should be made to cover all territory that an isolated plant could ultimately cover, in order that maximum results in load factor may be obtained.

61—Character of Service.

APPLICATION OF MOTORS IN MINING AND MILL INSTALLATIONS IN COLORADO, by W. J. CANADA. *Electrical World*, 23 $\frac{1}{4}$ pages, April 5, 1913, p. 724.

This gives tables of data from five mining and milling companies, which have installed motor drive for the various processes of recovering precious metals from ore, and shows the great saving and convenience from the use of electricity over steam-driven plants. Highly desirable load factors are noticeable in these operations.

61—Character of Service.

ELECTRICITY IN SHOE REPAIRING, illustrated article, *Electrical Review*, 4 $\frac{1}{2}$ pages, April 12, 1912, p. 747.

Discusses the conditions in this industry, which has opened up a field for central station power, by reason of the greater economy, and the superiority of the work done by motor drive machinery. Tables of data from six plants are given, with a table of the horse power required to run each of the different machines in such an establishment.

61—Character of Service.

ELECTRICITY IN THE CEMENT INDUSTRY, by L. D. GILBERT, illustrated article, and editorial, *Journal of Electricity Power and Gas*, 5 pages, April 5, 1913, p. 307 and p. 318.

This gives a brief history of the cement industry, and the development of the use of electricity for all purposes in cement mills, particularly the growth of electrical installations since individual induction motor drives were introduced, for the processes of cement making, about 1906. The adoption of electricity enabled the plants to enormously increase their output, as the industry was growing so rapidly that the demand for cement could not be supplied. Full description of the installation of a large plant in Utah is given, with power consumption, and output in barrels of cement. The electric motor has been a prime factor in reducing the cost of cement, and has helped to make it possible to put this most valuable building material on the market at a price that will allow its use in substitution of practically all other building materials.

614—Heating and Cooking.

ELECTRIC COOKING AND THE FIELD IT OFFERS CENTRAL STATIONS, by HENRY F. HOLLAND, paper read before the Tenth Annual Convention of THE COLORADO ELECTRIC LIGHT, POWER AND RAILWAY ASSOCIATION, Glenwood Springs, Colorado, Sept. 12-14, 1912, and printed in the Minutes of the Convention, 17 pages.

Describes the development of electric cooking, discusses its effect on load factor, and on peak load, and shows how this service can be made a very profitable part

of the central station's business. It is stated that to compete with gas at equal rates, electricity will have to be sold

at 3.40 cents per kilowatt-hour where gas is \$1.50 per 1000 feet.

at 2.83 cents per kilowatt-hour where gas is \$1.25 per 1000 feet.

at 2.27 cents per kilowatt-hour where gas is \$1.00 per 1000 feet.

This is as fair a comparison as can be made where exact comparisons cannot well be secured, though the speaker knew of installations of several electric ranges in communities where natural gas can be obtained, and is used for cooking at 25 cents and lower per 1,000 feet, this having been brought about because the electric cooking was so much more cleanly and sanitary, besides effecting a saving of a great amount of labor incident to attendance where fuel is used. The discussion brought out some interesting information of rate practice in supplying this service.

614—Heating and Cooking.

ELECTRIC HEATING AND COOKING, by THOMAS ROLES, abstract of paper presented before the Yorkshire Section of Institution of Electrical Engineers, Eng., and editorial, **ENCOURAGING THE COOKING LOAD**, *Electrical Review*, 3½ pages, April 12, 1913, p. 752 and p. 742.

This reports the experience of a large central station in England in increasing its output of electricity for heating and cooking, by offering the following special rate for this service.

RATE

Demand Charge

15 per cent per year on the net taxable value of the premises.

Energy Charge

1 cent per kilowatt-hour for all energy consumed.

Tables are given showing the increase in the number of customers, and in their domestic electrical consumption, and a summary of the accounts of 85 residential consumers, on the special domestic rate, showing the large and steady gains in current consumption. A useful discussion of cooking outfits, and tests of cooking utensils are given.

The editorial comments on the feature of the renting of electric cooking outfits to consumers by the central stations, as a means of introducing the service, and the different types of apparatus demanded by different localities.

INVESTMENT AND RETURN

31—Valuation.

THE APPRAISAL OF WATER-WORKS PROPERTIES, by DOUGLAS A. GRAHAM, abstract of a paper read at the Annual Meeting of the Illinois Water Supply Association, at Urbana, Ill., March 11-12, 1913. *Engineering News*, 1½ pages, April 3, 1913, p. 677.

Discusses the four distinct methods employed in making valuations of a water works property, namely, first, market value of its stocks and bonds, second, the commercial or comparative method, which figures the value of the plant by comparing it to the averages of the values of other plants in general, third, the "past cost" method, which, where the data can be accurately obtained, is stated to furnish an excellent, and in some respects a fair measure of value, and fourth, the "reproduction method," which is regarded as being in general the most useful. The advantages and disadvantages of each method are noted, and different kinds of depreciation, and going concern values are discussed.

313—Prices.

PRICES OF ENGINEERING MATERIALS, PRICE CHANGES AND THE BUSINESS OUTLOOK, Engineering News, 5 pages, April 3, 1913, p. 43.

34—Rate of Return.

RISK AS AN ELEMENT OF THE RATE OF RETURN ON CAPITAL IN ELECTRIC TRACTION PROPERTIES, by JAMES D. MORTIMER, Aera, 41½ pages, April, 1913, p. 759.

This article enumerates many special risks in electric street railway business, including the increasing overcrowding of the lower strata of the legal profession, and consequent serious losses from personal injury cases, continued agitation by aspirants for political office for extravagant additions and improvements to service, the expanding of the corporate limits of cities, the popularity of regularly raising the tax assessments of traction companies, increased demands in the matter of pavements, the added expense due to regulation, involving the defense of the utility in rate and regulation cases, employment of experts and appraisers, and extra legal expense, the higher cost of labor and material, the effects of industrial depressions or panics which fall more quickly and heavily on traction earnings than on those of any other public utility; all these factors cause operating expenses to increase more rapidly than gross earnings, in spite of the many efficiency measures which have been introduced. It is stated that if the elimination of the hazards is impossible because they are inherent in the business, attractive traction securities can be developed only through greater investment returns. Such is not possible with any rate of return so far used by any regulating commission in estimating the cost of service. Investments in traction utilities are not now being freely made, even under market conditions that create an active demand for securities of other public utilities.

GENERAL**74—Technical Company Data.**

A GREAT STEAM-ELECTRIC POWER PLANT, by W. L. ABBOTT, abstract of a paper read before the meeting of the Western Society of Engineers, Chicago, Dec. 22, 1912. Engineering News, 3½ pages, April 3, 1913, p. 657.

This describes, with diagrams and illustrations, the new power station of the Commonwealth Edison Company, Chicago, outlining some of the features governing the location and design of the station, the first two units of which are now in operation and are the largest ever built. A notable fact shown in the last portion of the article is, that owing to the rapid development of machinery of this kind, the present units (although of such recent date) will soon be eclipsed by others, and that the future units probably will be of an entirely different type from those now in service.

74—Technical Company Data.

ELECTRIC POWER IN CLEVELAND, illustrated article, and editorial, Electric Railway Journal, 6 pages, April 5, 1913, p. 618 and p. 615.

The Cleveland Railway Company has abandoned a large part of its power-generating equipment, and is purchasing from the local lighting company 60-cycle current, which is converted to direct current in a system of modern substations with storage batteries. An account of the installation is given, with a map of the city, showing zones served by the six sub-stations, illustrations, diagrams and load curves, together with a description of the 60-cycle 1500 kilowatt rotary converters.

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April 23, 1913

No. 4

RATE RESEARCH



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RATE RESEARCH COMMITTEE
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120 WEST ADAMS STREET - - - CHICAGO

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CONTENTS		Page
RATES		51
PUBLIC SERVICE REGULATION		51
New York		51
Kansas		57
Wisconsin		58
California		58
New York		59
COMMISSION REPORTS		59
New York		59
REFERENCES		60
Rates		60
Investment and Return		62
Public Service Regulation		63
General		63

Rate Research

Vol. 3.

CHICAGO, APRIL 23, 1913

No. 4

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES PUBLIC SERVICE REGULATION NEW YORK

3—Investment and Return.

COMPLAINT AGAINST THE QUEENSBOROUGH GAS AND ELECTRIC COMPANY, Borough of Queens, Greater New York, alleging excessive rates for gas and electricity. Decision of the NEW YORK PUBLIC SERVICE COMMISSION (1st D.) reducing rates. June 23, 1911. P. S. C. R. (1st Dist. N. Y.), p. 544.

The Commission's action in this case was facilitated and simplified by the voluntary offer of the company, in order to save the large expense and inconvenience of completing its side of the case, in the interest of economy in justice to itself and its consumers, to accept the determination of the Commission, and to put into effect, at least for one year, the rates decided to be reasonable and proper. This led the Commission to drop the formal proceedings, and to deal with the matter "through open, informal conferences with the complainants, and the representatives of the company," thereby saving time, and securing the advantage that the various factors were much more freely and frankly discussed, than is possible under formal proceedings, when a review by *certiorari* is to be anticipated, and every party concerned hesitates to be free and open, for fear some slip or inadvertent admission may be used against him, and exceptions to rulings are generally made, in order that every possible point may be reserved. The main considerations and rulings of the Commission, on which the conclusions as to rates are based, are conveniently given in the syllabi prepared by the Commission placed at the head of the opinion, as follows:

319—Land.

In a proceeding to determine what rates and charges were reasonable, it appeared that the Q. B. G. & E. Co. had recently acquired for \$21,000 two parcels of real property, which were not being used, and were not urgently needed for immediate use. The purchase was justified by the president of the company, on the ground that land in that district was increasing steadily in value, and that it

would be cheaper to purchase now and thus secure the increase in value, than to wait and pay a much higher price when more land was actually needed. HELD,—that this policy may be wise, but, until this new land is used for gas and electric purposes, and is necessary for efficient and economical management, it is not incumbent upon the Commission to include it as a necessary part of the property upon which the company is entitled to earn a fair return.

In determining the value of the land of a gas and electric corporation, it would be unfair to take boom figures, and it would be equally unfair to fix the price at what the property would bring at forced sale. Consideration must also be given to the fact that the property is covered with certain structures. . . . The buildings should be appraised on the basis of cost to reproduce, less depreciation.

32—Appreciation.

In determining the fair value of the property of the Q. B. G. & E. Co. for the purposes of a proceeding as to its rates and charges, the question was raised whether the land owned by it should be included at its original cost, or at its estimated value at the time the rate is to be fixed. HELD,—that, while each case must be decided upon the facts peculiar to it, the Commission believes it proper in this case to take the land at its fair present value, and not at its original cost, and to treat the annual appreciation of the land as a profit of the company.

33—Capitalization.

The defendant company claimed that, in computing the amount upon which it was entitled to earn a reasonable return, there should be included a sum representing its requirements in the way of repairs and replacements in the immediate future. HELD,—that the company was not entitled to capitalize, or to earn a fair return upon, repairs and replacements, for all repairs, renewals and replacements should be charged to earnings.

The defendant company claimed that there should be included . . . an amount representing its requirements for the immediate future in the way of extensions and additions for future consumptions. HELD,—that the company was not entitled to capitalize or to earn a fair return upon future expenditures for this purpose, for the additional consumption which these additions are to supply should, and doubtless will, itself provide a fair return upon the new investment; furthermore, it is not reasonable to require consumers to pay higher rates than they otherwise would be required to pay in order that these higher rates may provide funds from which to construct additional plant which becomes the property of the company.

The defendant company claimed that, . . . there should be included an amount representing future expenditures for additional plant to improve the service. It appeared that the company did not have sufficient gas and electric plant to afford proper service, that its electric plant must occasionally have been run beyond rated capacity, that additional equipment was necessary to prevent failure of service in an emergency, and that the gas plant did not have sufficient condensing and purifying capacity. HELD,—that, as the company has expressed its willingness to provide this additional apparatus, it seems reasonable that an allowance should be made for such additions to the plant as would be necessary to handle the business during the current year.

314—Overhead Charges.

There are certain expenses in connection with every undertaking which are not represented by physical property, but which must be incurred before the plant is operated. These relate to the initial promotion of the scheme, and the organization of the company. Investors must be interested; lawyers and engineers must be consulted; franchises and permits must be secured; interest on the taxes during the period of construction must be paid, and, as there are no earnings, they must be included as a part of the cost of the undertaking.

314.44—Contractor's Profit.

It is common for a new company to let a contract for the erection of its initial plant to a construction company; and, if the latter were paid the cost of labor and materials plus ten per cent. to cover certain items of expenditure, the price would not be considered unreasonable; but such a plan is not generally followed throughout the life of an undertaking, where thrifty, progressive management exists, and additions and extensions are commonly engineered, constructed and supervised by the operating company itself without the intervention of a contractor.

314.6—Taxes and Insurance During Construction.

As soon as an operating unit in the power station and a few lines are completed, operation of that portion may begin, and, when operation may begin, the construction period for that portion ends, and when the construction period ends, interest and taxes may no longer be charged to construction cost; they then become operating expenses, and should be paid out of operating income. As other lines are built and additions made, it is proper to charge interest and taxes upon them to capital, but only until the property is ready for use, provided good management has been used throughout. Thus, the equated period for which interest and taxes should be charged to capital account becomes, not the time from the initiation of the idea to the completion of the last remote branch, but the

weighted average time for the completion of each operating unit, due allowance being made for the cost of such unit. A pure average is not correct, for the amount of interest to be paid has relation, not merely to the period, but to the cost of the work.

314.7—Early Experimental Work.

There are also other expenses connected with the experimental and trial operation of machinery, and the adjustment of various parts, etc., which antedate operation and must be allowed in determining the fair value of the property.

314.8—Deficit in Early Earnings.

The defendant company contended that, if the principle be adopted that the amount included for "going concern" value should be limited to expenditures made prior to the time when operation began, a further allowance should be made in the rate of return, if, in the early years of operation, the plant did not earn a fair return after payment of all proper operating charges. HELD,—that this idea should be considered in every rate case, but, after the lapse of from twelve to seventeen years, it is doubtful whether the present consumers ought to be burdened in order to enable the company to recoup its early deficiencies below a fair rate of return.

The Company argued for an allowance of 25 per cent upon every item of net cost. The Commission's valuation allows 19½ per cent. on the net cost of physical property exclusive of land.

34—Rate of Return.

The standard which is applicable in determining what is a fair rate of return for the purposes of a case involving the rates and charges of the Q. B. G. & E. Co. is that the rate should be such that investors would be induced to provide the funds with which to construct and extend a gas and electric plant within the area in question.

After considering all the factors, the Commission is of the opinion that, in view of the circumstances surrounding the Q. B. G. & E. Co. and the character of the area within which it operates, a fair rate of return on both gas and electric undertakings for the purposes of the present case would not exceed eight (8) per cent.

341—Bond Interest.

In determining the fair rate of return which should be allowed a gas and electrical corporation, upon the fair value of the property used by it in the public service, the ordinary method of raising funds is a factor which must be considered, for money can be secured by the issuance of bonds at a lower rate than stockholders demand, and, other things being equal, the rate of interest which must be paid, increases as the proportion of the capital raised by the issuance of bonds increases.

315.1—Going Value.

The defendant company argued that, . . . there should be added some considerable amount for "going concern" value: (1) Because the company's system has been adjusted, tried out and unified; (2) because the company has a clientele, established connections, and a name in the community; (3) because valuable experience and data regarding the business have been accumulated; and (4) because the early years wherein losses usually occur have been passed. HELD,—that, for the purposes of a rate case, no allowance should be made for "going concern" value, in addition to the elements which already have been liberally allowed for under the heading of preliminary and development expenses, and as "overhead charges" in connection with the appraisal of the physical property.

318—Working Capital.

Inasmuch as gas and electric companies must purchase materials and supplies, must pay their employes, and must distribute their commodity to consumers in advance of payment for such service, there is required a fund ordinarily called working capital, which is reimbursed from the operating receipts from time to time, but originally is provided from the capital account.

36—Depreciation.

The question whether depreciation is a proper operating charge is no longer open to debate, and it is the generally recognized rule that rates should be sufficient to permit current repairs to be made, parts to be replaced, and other charges met, so that by one means or another the investment may be kept unimpaired.

Experience has shown that the "straight-line" method for computing depreciation produces a larger fund than is necessary, and that in actual practice a sinking fund will not accumulate as rapidly as the tables indicate.

The defendant company suggested that, as it did not set aside until recently a sufficient amount of depreciation, its rates should now be fixed so high that the depreciation in past years might be made good. HELD,—that prudent management unquestionably requires that, if allowance has not been made in past years for depreciation, it should be made up from earnings as rapidly as possible, but, if a company fails to exact sufficient return or to keep the investment unimpaired, whether this is the result of unwarranted dividends upon over issues of securities, or an omission to exact proper prices for the output, the fault is its own, and therefore, when a public regulation of its prices comes under question, the true value of the property then employed for the purpose of earning a return cannot be enhanced by a consideration of the errors in management which were committed in the past.

41—Cost of Service.

In order to determine the proper maximum rates for gas and electricity, it is necessary to estimate the probable consumption, the earnings which would accrue from sources other than the sale of gas and electricity at the maximum rate, and the cost of service.

Certain consumers served by the Q. B. G. & E. Co. urged that gas and electricity should be supplied to them at the same rates that prevail in Manhattan, or at least in Brooklyn. The company replied that local conditions in its area were entirely different from those in Manhattan and Brooklyn, that the population was not only sparse, but fluctuating; that there was, in the Far Rockaway district particularly, a large summer population and a very small winter population, with the result that a large amount of plant had to remain idle during eight or ten months of the year, and unusual expenses were incurred as the result of such changing conditions. It appeared that the number of meters in use in August by the Q. B. G. & E. Co. was almost twice the number at the end of December, that the consumption during August was four or five times what it was during the winter, that the power use of electricity was small, that miles of main lay idle during the winter, and that the summer business came on with a rush, and was expensive to handle. HELD,—that these local conditions will change as the area builds up, and there seems to be no reason why the prices for gas and electricity should not steadily decrease, but at the present time these peculiar local conditions must be taken as they exist and cannot be disregarded.

72—Rate Schedules.

The electric rates, as is usually the case, had much greater variations [than the gas rates]. The highest was 15 cents per kilowatt-hour, paid by the vast majority of consumers, and generally by those who initiated this proceeding. The lowest was three and one-half cents for wholesale power, for pumping purposes during certain hours. The city paid from \$65 to \$100 per lamp per year for street arc lamps, burning all night, and 10 cents per kilowatt-hour for general municipal lighting. . . .

The Commission now announces the following conclusion. . . .

That the maximum rate for electricity from July 1, 1911, to July 1, 1912, shall be 13 cents per kilowatt-hour.

The Commission is considering a sliding scale plan to be put in operation July 1, 1912, through which to secure for consumers reductions in rates from time to time, and for the company the returns attributable to efficient management.

The calculations of the Commission, using the valuation it found to be fair, and the estimated consumption of current, with a rate of return of 8 per cent. would allow of a rate of 12 cents per kilowatt-hour. The rate prescribed thus allows 1 cent per kilowatt-hour for margin. The plan for a sliding scale of rates and dividends has not yet been designated.

KANSAS

3—Investment and Return.

COMPLAINT OF JOHN MARSHALL, Attorney for the KANSAS PUBLIC UTILITY COMMISSION VS. KANSAS NATURAL GAS COMPANY, and Some Thirty Distributing Companies and Cities, praying for investigation of the cost of gas service, of the receipts of the producing and distributing companies, and of the alleged violation of the antitrust laws of the state; and Applications of the receivers of the company for permission to increase rate. Decision of the KANSAS PUBLIC UTILITY COMMISSION disapproving the financial operations of the companies, and denying the applications for raise of rates.

The opinion reviews the financial history of these gas companies, and discusses the conduct of their business since its beginning in 1904, giving the table of the financial statements for each year, and reports of stock and bond issues, and concludes that the present rate of 25 cents per thousand cubic feet, is just and equitable.

Significant paragraphs of the decisions concerning rates and valuation are:

45—Value of the Service.

It appears from the evidence that an axiom in the gas business is, that . . . if the price goes up, consumption decreases. If the price goes down, consumption increases. The effect of this axiom is to make the revenue per meter per year substantially constant. . . .

Taking into consideration the axiom, and the loss of revenue which would be caused by cutting off the gas for boiler, power and domestic heating purposes, we must conclude that the highest revenue-producing rate is probably the rate now in effect, and that domestic users, as well as the companies, are benefited by the use of gas for boiler and power purposes. . . .

If for any reason these rates, being reasonable, fail to provide a sufficient return, it is the misfortune of the investors. . . .

31—Valuation.

Another factor which renders the work of fixing a proper valuation for rate-making purposes difficult is the question of the company's investment. The only money that has been invested in the plant is the money realized from the sale of the bonds above referred to, and, in addition, something from the earnings of the company. The bondholder's claim has been reduced, by money taken from the earnings of the company, to \$7,159,000. Aside from that amount, every dollar of the money invested in the gas plant has been paid to the company by the people who have used the gas. In other words, the Lord furnished the gas, and the pub-

lie furnished the money. The bondholders who have been paid their principal and interest have no further interest in, or demand upon, the company. When the holders of the remaining \$7,159,000 bonded indebtedness have received their principal and interest, the company and the people will be quit of them, and, there being no stockholders who are entitled to dividends, it is difficult to see just what revenues above operating expenses this company should be permitted to collect.

WISCONSIN

831—Purchase by Municipality.

PROPOSED PURCHASE OF THE PLANT OF THE RACINE WATER COMPANY BY THE CITY OF RACINE, WIS. Decision of the Wisconsin Railroad Commission, Oct. 4, 1912.

The electors of Racine at a regular municipal election, voted to purchase the Water Works of the Racine Water Company, under the provisions of the Public Utilities Law relating to operation under indeterminate permits. The company makes objection to the jurisdiction of the Commission in this case, contending that the city's proceedings were irregular and defective in law. The decision overrules the objection and states that the case will be settled when it is reached on the present calendar.

CALIFORNIA

221.1—Issue of Stock and Bonds.

APPLICATION OF CENTRAL CALIFORNIA GAS COMPANY, for permission for the Issue of \$30,000 of Preferred Stock for the purpose of Paying its Organization Expenses. Decision of the CALIFORNIA RAILROAD COMMISSION granting permission for Issue of \$27,500. Jan. 30, 1913.

The decision says:

HELD, with regard to allowance of capital stock for promoter's services and organization expenses, such expenses, if honestly and wisely incurred, are as necessary to the success of a public utility, and are as properly subjects of capitalization as the cost of the component parts of the utility's physical plant or system, and that the same should be paid for in cash where possible at their reasonable value to the utility. Wherever possible, the moneys actually spent on these items should be ascertained and reimbursement made for them. While it is not always easy to estimate the value of a promoter's services, the inquiry should be made as to the amount of time which he has devoted to the organization of the utility, and to the reasonable value of work such as that which he performed during that time. A public authority, in estimating the value of such services, should be liberal, so that men of ability may be

attracted to the development of new utility enterprises where needed for the development of the State. It may be well that, in addition to a reasonable compensation for the time devoted to the work, the promoter should be allowed an additional remuneration to compensate him for his risk of failure, and the use of such money as he may have invested in the organization and promotion of the enterprise.

NEW YORK

22—General Powers of Commission.

The NEW YORK RAILWAYS COMPANY has served upon the NEW YORK PUBLIC SERVICE COMMISSION (1st D.) a writ of *certiorari*, to review the action of the Commission in requiring the company to set aside 20 per cent. of its gross earnings each month for maintenance and depreciation. This requirement was embodied in the order of the Commission issued February 27, 1912, approving the mortgages issued by the New York Railways Company in the reorganization of the old Metropolitan Street Railway Company, which it succeeded. The company claims that the Commission has no authority to make such an order, and that in so doing it illegally substitutes the judgment of the Commission for the judgment of the company's Directors.

COMMISSION REPORTS

253—Commission Reports of Decisions.

REPORT OF DECISIONS OF THE NEW YORK PUBLIC SERVICE COMMISSION (1st D.), Vol. 11, September 1, 1909, to January 1, 1912. 796 pages. \$1.50.

The following decisions directly concerned with electric cases are included in this report:

	Page
Queensborough Gas and Electric Company.....	544
Order reduces rates.	
Modifications of the Uniform System of Accounts for Electrical Corporations	536
Application of Long Acre Electric Light and Power Company for Authority to Issue Certain Stocks and Bonds. (No. 2)...	593
Granted.	
Application of the Bronx Gas and Electric Company for the Approval of the Issue of \$1,500,000 of Bonds.....	150, 178
\$624,636.43 allowed, increased to \$643,000 on rehearing.	
Application by the Kings County Electric Light and Power Company for Authority for the Issue of \$5,000,000 of Convertible Debenture Bonds.	193
\$2,500,000 allowed.	

Application of the New York Edison Company for Authority to Issue \$5,349,400 of Additional Stock.....	276
\$247,000 allowed.	
Application of the Bronx Gas and Electric Company for Approval of a Further Issue of \$154,000 of Bonds.....	476
Granted.	
Richmond Light and Railroad Company.....	509
Company amended its schedule of rates for extension of its service more than 100 feet from mains, satisfactorily adjusting complaint.	
Application of New York Edison Company for Authority to Purchase Ninety-five Shares of the Capital Stock of the Yonkers Electric Light and Power Company.....	520
Granted.	

REFERENCES

RATES

511—Flat Rates.

FLAT RATE PROBLEMS, editorial, *Electrical World*, April 19, 1913, p. 809.

The flat rate campaigns for small residences in Hartford, Conn., have resulted in popularizing electricity, and in its utilization there much more than in most cities of very much larger size. A neighboring city now reports another campaign, in which 100 candle power in tungsten lamps, which may be divided to suit convenience, for example, one 40 candle power and three 20 candle power lamps, is offered for \$1 per month, and more at the same rate if needed. This in practice has worked out very well, as customers have been found to be appreciative of the benefits from this rate, and reasonably careful in turning off lights not in use. It is estimated that the hundred-candles-for-a-dollar rate, under ordinary circumstances brings in revenue equivalent to 8 or 9 cents per kilowatt-hour, which is very satisfactory, considering the simplicity of accounting required, and the absence of all meter expense.

61—Character of Service.

ELECTRICITY IN BOTTLING WORKS, illustrated article, *Electrical Review*, 6 pages, April 19, 1913, p. 795.

This gives examples of shops bottling beer, milk, and wines, liquors and soft drinks, and discusses the possibilities for central station power in this industry. Data sheets containing all the details of installations and operating, with kilowatt-hours consumption for different months, and load factors, for five typical plants are given.

61—Character of Service.

MOTOR DRIVE IN RAILROAD CAR AND REPAIR SHOPS, illustrated article, *Electrical Record*, 7 pages, April, 1913, p. 21.

States that the advantages of electric power over steam power in this industry are in the main the same as for other manufacturing plants, namely, economical arrangement of tools, economical distribution of power, minimum time for repairs,

minimum cost of repairs, and maximum light, cleanliness and output. These advantages are well known, and the chief consideration today is given to the discussion of the relative advantages and disadvantages of individual versus group drive.

Tables of data, descriptions of the operations, and illustrations of motors from some twenty such installations are given.

61—Character of Service.

ELECTRIC WELDING, by W. M. PRICE, *Journal of Electricity, Power and Gas*, 2¼ pages. April 12, 1913, p. 338.

Describes the processes and various electric systems of uniting metals in joints, and the different inventions and patents in the development of electric welders. It states that costs of welding by electricity are very much lower than by any other system. Arc welding can be done electrically with equal strength at about half the cost of gas welding. Butt welding and spot welding can be done in any kind of quantity at from 5 to 15 per cent of the cost done in any other way.

616-1—Street Lighting.

STREET LIGHTING WITH ORNAMENTAL LUMINOUS ARC LAMPS, by C. A. B. HALVORSON, JR., and discussion by Members. *Transactions of the Illuminating Engineering Society*, 10 pages. Feb. 1913, p. 88.

This paper outlines the general lighting requirements of business and residential streets and parkways. For business streets it is contended (1) that the illumination should be of a different color and character from that employed in store windows, in order that the effect of the latter may not be impaired; (2) that the illumination should be comparatively brilliant, though not greater than the intensity of the windows, to attract trade and insure traffic safely. Residential street lighting requires the use of as few light sources as possible to produce the average low intensity of illumination, a non-uniform illumination being more desirable than an extremely uniform one. Parkway and driveway lighting demand primarily an illumination of sufficient intensity from light sources of low intrinsic brilliancy, to insure traffic safety. In all three classes of lighting the decorative possibilities of ornamental lamps and standards is said to deserve particular consideration.

623—Load Factor.

DEVELOPING PROFITABLE SUMMER DAY LOADS, by A. G. RAKESTRAW, *Electrical Engineering*, 1¼ pages, April, 1913, p. 182.

Gives suggestions for a campaign of introducing domestic labor saving devices into homes, which appeal particularly for use in the summer months, as cooking, ironing, washing, cleaning, etc., can be so much more comfortably done by electric means than any other, the electric fireless cooker being most economical as well as convenient. Ice making, or any other refrigerating service is also a most advantageous summer business.

623—Load Factor.

ANALYZING PEAK LOADS, editorial, *Electrical Review*, April 19, 1913, p. 790.

Considering the importance of the peak load in relation to plant investment, one of the most profitable and necessary parts of efficient management is to understand the causes of the peak, and keep account of new business, and of the demands of different characters of service, in their relation to the peak.

This can be done best by making yearly, monthly and daily load curves. Suggestions for making such curves are given, and their usefulness in indicating sources of inefficient operation, and the most profitable lines of commercial attack are pointed out.

INVESTMENT AND RETURN

144—Mergers.

SIMPLICITY IN CONSOLIDATION, editorial, *Electrical World*, April 19, 1913, p. 809.

This points out the need of simplification in the records and accounts to be kept in the numerous small public service companies which are being consolidated in wholesale numbers at the present time. This brings in a new phase of consolidation management, differing from that required in the mergers of plants serving cities of large populations, and the men at the head of these affairs, being of course inexperienced in dealing with such small properties, and the operation of such small units, may be in danger of carrying the methods necessary for large concerns, into the smaller ones. The best of judgment is needed to determine how much red tape and system can be done away with without affecting the net results disadvantageously, and a study of the reports and systems of most plants will show that some records and reports are costing much more than they are worth.

222—Accounts.

ACCOUNTING UNDER UTILITY REGULATION, by JOHN A. BRITTON. *Journal of Electricity, Power and Gas*, 3¼ pages. April 12, 1913, p. 329.

This gives with graphic charts and definitions, a very clear and definite presentation of the subject of accounting, with excerpts from instructions of the accounting department of the Pacific Gas and Electric Company, of which Mr. Britton is vice-president and general manager, to its several divisions and districts.

31—Valuation.

THE VALUE OF VALUATION, editorial, *Electrical Railway Journal*, 1 page. April 12, 1913, p. 667.

This is an answer to criticisms of a former editorial on this subject, abstracted in 3 RATE RESEARCH 29, and mentions the results of the official state valuations of their railroads by Minnesota, Washington and Wisconsin, and the valuation of the New York, New Haven and Hartford Railroad, by the Massachusetts Railroad Commission, as proving that the commonly accepted view that the railroads are over capitalized, which is the contention mainly responsible for the federal valuation act, is erroneous. The appraisals of the properties would be of some value to the companies as an inventory, but would not justify the cost of making them; and the opinions and practices of different appraisers are so divergent, that there is little hope of getting results which would be generally accepted as reliable and satisfactory. The need of greater uniformity of methods and standards is now being felt, and fortunately the importance of reaching definite conclusions on this subject, based upon correct accounting principles, is being realized to a greater extent now than ever before, and indications are that rapid progress will be made in this direction within the next few years.

It is further stated that one provision in the law which causes uneasiness is that requiring "the original cost of all lands, rights-of-way and terminals" to be ascertained. This, aside from the impossibility of getting such information in many cases, leads to the fear that appreciation is not to be allowed, whereas every other property owner enjoys the unquestioned right to increase in the value of his holdings.

313—Prices.

COST OF NORTHERN WHITE CEDAR POLES, AND BUTT-TREATMENT OF SAME. Engineering and Contracting. April 16, 1913, p. 435.

This gives a table of the cost of these poles for different diameters and lengths, and cost of butt-treatment, with computations of the number of years of added life necessary to pay cost of treatment. This time varies from 3.6 to 1 year, while the estimated increase of life secured is from 15 to 12 years.

36—Depreciation.

DEPRECIATION, by COMMISSIONER HALFORD ERICKSON, Address Delivered before the Convention of Central Water Works Association, Detroit, Mich., Sept. 25, 1912.

This paper, noticed in 2 RATE RESEARCH 75, is now printed in pamphlet form by the Wisconsin Railroad Commission. It is an admirable presentation of the subject of depreciation. Thirteen pages of tables are given at the end of the text, showing the life of electrical and water works plants as computed by the various methods, the relation of depreciation charges to depreciation reserve, comparison of cumulative balances, and the depreciation reserves of Wisconsin Electric Utilities and Water Utilities in cities of populations varying from over 40,000 to under 500.

PUBLIC SERVICE REGULATION**82—State Regulation of Municipal Utilities.**

REGULATION AND MUNICIPAL OPERATION, editorial, Electrical World, April 19, 1913, p. 809.

States that the efforts being made, in nearly all the legislatures in which commission bills are pending, to exempt municipally owned or operated utilities from state regulation, are ill advised and against public policy, and if successful will result in detriment to the consumer, for experience has proved that of all utilities, those operated by municipalities are most in need of regulation. With the present day steady increase of large systems supplying vast regions, and so enjoying improved load and diversity factors, the small municipal plants will be even more uneconomical than in the past, and in trying to survive, will resort to measures which would not be tolerated by a public service commission, under which conditions state regulations will be required to protect the interests of the tax payers.

In this connection it is interesting to note, that when the Pennsylvania Legislature was considering omitting the control of municipal utilities from the provisions of the Pennsylvania Public Service Law, the Rate Research Committee obtained, at the request of a Member Company, the following telegram from Commissioner Halford Erickson of the Wisconsin Railroad Commission:

Have no hesitancy in stating publicly that I am personally much opposed to exempting municipally owned plants from those provisions in the public utility law which relate to rates, accounts, etc. This is also the position of this Commission.

GENERAL**91—Promotion and Growth of the Business.**

THE ECONOMICS OF MONOPOLY IN PUBLIC SERVICE BUSINESS, by SAMUEL INSULL. Address before the COMMONWEALTH EDISON SECTION OF THE NATIONAL ELECTRIC LIGHT ASSOCIATION, Chicago, April 15, 1913. Electrical World, 4-5 page, April 19, 1913, p. 816.

This address, which is along the same lines as Mr. Insull's paper read before the Franklin Institute, Philadelphia, referred to in 3 RATE RESEARCH 14, gave

convincing evidence of the economy of centralized or unified production and distribution of electricity, from the results, in better load factor, high diversity factor, and various other sources of saving, obtained in supplying electric service in Lake County, Illinois, to scattered towns, and their surrounding rural districts, and from computations on the facts brought to light in this service. The practical information of the conservation of coal, the utilization of water powers, and the thorough knowledge of detail in the efficient and economical handling of the electricity supply business in all its branches, combined with the breadth of view, and clear outlook into the future development of this great industry, which will bring cheap power into every home, and to manufacturers enabling them to establish their business away from the costly conditions surrounding manufacturing in the large cities, showed the grasp of the whole electricity supply situation which is needed in a leader and organizer of its management on a large scale.

91—Promotion and Growth of the Business.

THE ENGINEERING AND COMMERCIAL STATUS OF CURRENT CONSUMING DEVICES, illustrated article, *Electrical Engineering*, 9 pages, April, 1913, p. 167.

This gives illustrations and information of the development in the introduction and use of large numbers of current consuming devices, for domestic labor saving, with the applications of small motors in running such various apparatus for household convenience, and for small industrial uses such as forge blowers, glue pots, coffee grinders in grocery stores, etc.

96—Co-operation.

SHARING SECURITIES WITH THE PUBLIC, editorial, *Electrical Review*, April 19, 1913, p. 790.

Refers to the plan of the Philadelphia Rapid Transit Company to offer over \$4,000,000 in car trust bonds soon as a popular loan. This species of practical co-operation was tried in Buffalo not long ago, with large success, as any utility willing to "let the public in on the ground floor," thereby greatly improves its relations with those ordinarily out of touch with its finances. It is understood that the Philadelphia company's plan has been decided upon in spite of the willingness of leading financial interests to underwrite the whole issue, the officers of the organization believing that if the man of small means and correspondingly small savings, is given a fair chance to put his money into the bonds at an attractive rate of interest, the result will be a better feeling toward the company, which will be a real asset in the conduct of its exacting business.

98—Public Relations.

NEWSPAPER ADVERTISING PREVENTS ARBITRARY REDUCTION IN RATES, *Electrical Review*, 1-3 page, April 19, 1913, p. 802.

The Southern California Edison Company, Pomona (pop. 15,000), Cal., by a newspaper publicity campaign in which were laid before the people sworn operating statements of the Pomona district for the year 1912, and figures bearing upon investment values, and comparisons of its rate of return with prevailing rates of interest, won its case by a verdict of the people voting in an election, by a majority of about two to one, against an arbitrary reduction in the gas, electric and water rates. The attempt had been made by introducing an ordinance into the city council to summarily reduce the electric rate from 8 cents per kilowatt-hour, to 5.5 cents, the gas rate from \$1, to 90 cents per thousand, and to reduce the water rate by about 25 per cent, these rates being calculated without any special investigation, or knowledge of whether they would yield a fair return upon investment. The council instead of passing the ordinance, submitted it to the people, with the above result, gratifying in showing the fair mindedness of the public when well informed as to the facts.

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No. 5

RATE RESEARCH



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CONTENTS		Page
RATES		67
PUBLIC SERVICE REGULATION		67
New Jersey Rules for Mergers		67
COMMISSION REPORTS		68
Maryland		68
COMMISSION PROCEDURE		69
Maryland		69
COMMISSION DECISIONS		70
California		70
New York		71
VALUATION		72
England		72
PUBLIC SERVICE LAWS		74
Oklahoma		74
Indiana		75
REFERENCES		75
Rates		75
Investment and Return		77
Municipalities		79
General		80

Rate Research

Vol. 3.

CHICAGO, APRIL 30, 1913

No. 5

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES PUBLIC SERVICE REGULATION

144—Mergers — New Jersey.

RULES GOVERNING APPLICATIONS FOR APPROVAL OF MERGERS UNDER CHAPTER 19, OF THE LAWS OF 1913. Promulgated by the New Jersey Board of Public Utility Commissioners.

Every application to the Board of Public Utility Commissions, under Chapter 19 of the Laws of 1913, for approval of a proposed merger of corporations must comply with the following requirements:

1. The application shall be by petition signed, on behalf of the corporations proposed to be merged, by the president and secretary thereof, respectively.
2. There shall be submitted with the petition, *but not attached thereto*, the original agreement of merger and the original certificates required by Section 105 of "An Act concerning corporations (Revision of 1896)," to establish that the provisions thereof have been complied with.
3. A copy of original agreement and certificates shall be attached to the petition.
4. The petition shall set forth specifically the nature of the business in which each of the corporations proposed to be merged is actually engaged; state the territory over which the business of each has actually extended; and set out the reasons for, and the objects sought to be accomplished by, the proposed merger.
5. No application will be approved without public hearing. A day and place for such hearing will be fixed by the secretary of the Board, upon the filing of the petition, and notice thereof will be mailed by the secretary to the applicants.
6. If any stockholder has dissented from, or failed to assent to, the proposed merger, it shall be the duty of the corporation whose stock he holds to give each such stockholder at least two days' notice by mail of the time, place and purpose of such public hear-

EDITORIAL NOTE.—All indented matter is direct quotation.

ing, and file with the Board, at or before such public hearing, an affidavit establishing the mailing of such notice.

7. Applicants must be prepared at the hearing on their petition to furnish the Commission, if requested, with information relating to the scope of their business; statement of income and outgo; of assets and liabilities, of trade agreements and practices which, in the judgment of the Board, may be relevant to action on the petition.

COMMISSION REPORTS.

252—Annual Reports.

ANNUAL REPORT OF THE MARYLAND PUBLIC SERVICE COMMISSION for the year 1912, 629 pages.

The decisions directly concerned with electric light questions include the following:

	Page
Application of the Edison Illuminating Company of Cumberland for Permission to File on Less than Statutory Notice a New Tariff of Rates for Light and Power.....	189
Granted.	
Applications of Baltimore Consolidated Gas, Electric Light and Power Co. for Permission for the Issue of \$1,500,000 Common Stock	98, 104
Granted.	
For Permission for Issue of \$747,000 of General Mortgage Bonds.	403
Granted.	
For Permission to Lease from Mt. Washington Electric Light and Power Co.....	96
Granted.	
For Permission to Acquire Baltimore County Water and Electric Light Co.....	153
Granted.	
Complaint v. Baltimore Consolidated Gas Electric Light and Power Co., charging discrimination.....	132, 420
Dismissed.	
Authority of Baltimore Consolidated Gas Electric Light and Power Co. to engage in the business of Making and Selling Electrical Supplies and Appliances.....	128, 437
Sustained.	
Application of Edison Electric Illuminating Co. of Cumberland for Permission to Issue \$50,000 of Common Stock.....	375
Granted.	

Complaint against Centreville Electric Light Plant.....	448
Opinion of Commission Counsel.	
Construction of Clause in Maryland Public Service Law <i>re</i> Valuations, that Value of Bonds Issued by Corporations Prior to Passage of Commission Law May Not Be Disturbed.....	471
Complaints of Cityco Realty Co. and Evergreen Lawn Land Im- provement Co. v. Baltimore Consolidated Gas, Electric Light and Power Co. to Compel Service.....	208, 216
Dismissed.	
Financial Tables of Electric Light Companies.....	572

In the decision of the complaints of the Realty Company against the Baltimore Consolidated Gas, Electric Light and Power Co., p. 208, charging unreasonable terms for extending its mains to furnish gas service, a compilation is given of the rules governing such extensions in seventeen of the principal cities of the United States.

Nine pages of tables of the electric light companies of Maryland are given, showing the assets, liabilities and surplus, gross income, net income, funded debts and capital stock outstanding, and various operating statistics and details of financial information.

24—

COMMISSION PROCEDURE

THE MARYLAND PUBLIC SERVICE COMMISSION has issued the following order to save loss of time, and prevent delays occasioned in the past, by the requirement that the Chief Engineer, in any case of investigation, must obtain the Commission's order directing the public utility concerned to furnish the specific information desired by the Chief Engineer.

Ordered, That the Chief Engineer of the Commission be, and is hereby, authorized in any matter which he may be directed by order of the Commission to investigate and report upon, to call upon the public service corporations under the jurisdiction of this Commission, for such information as may be needed by him in the course of his investigations; and the public service corporations under the jurisdiction of this Commission are hereby directed to supply all such information as may be demanded by said Chief Engineer, within the time specified in the demand, as fully and completely as if the same were required by a special order of the Commission in the premises.

COMMISSION DECISIONS

CALIFORNIA

12—Protection of the Public.

Application of MIDWAY GAS COMPANY for Certificate of Public Convenience and Necessity to exercise franchises for long distance transmission and distribution of natural gas in Los Angeles and adjacent territory. Decision of CALIFORNIA RAILROAD COMMISSION denying the application. February 20, 1913.

The opinion, while approving of the project of developing the natural gas industry, and stating that such supply would be of great benefit to the public, disapproves of several contracts which the various companies involved in the scheme have entered into, and as the granting of this application would permit these contracts to become effective, and thus establish beyond the power of competent public authority to regulate, the rates and conditions agreed to therein, the present application is denied.

The conclusion of the decision is:

The several contracts covering these respective arrangements [are] summarized as to their essential terms and conditions and . . . the Commission [is] of the opinion that the purpose of the entire scheme is to limit output, restrict distribution, and fix wholesale costs beyond the chance of any unwelcome public regulation. This scheme is sought to be consummated by (1) preventing others than the participants in these contracts from buying natural gas; (2) preventing others than the participants in these contracts from selling natural gas, either wholesale or retail; (3) limiting the territory within which the gas may be distributed; and (4) fixing a price in the contracts for gas at wholesale, and providing that, in the event public authority shall successfully exert itself, the whole scheme shall fall. The result of the consummation of this scheme will be to bring about a monopoly which is not subject to restraint; a monopoly which will be in control of a cheap supply of natural gas, and capable of destroying any competitors, except those that have found favor in its sight, by reason of its ability to undersell them, and it will have as the initial cost of this commodity, a price which it is endeavored with the utmost care to exempt from public meddling, and a price which if this scheme is legal at all, public authority, either State or municipal, must accept as the point from which to proceed in fixing rates. . . .

We do not want to be understood as saying that we do not think liberal profits should be made by men of ideas, who assume the risk of the development of an enterprise such as this one, and

whose breadth of vision permits the conception thereof, and we do not complain even about the very liberal compensation which, apparently, [its promoters] would make out of this idea, and this enterprise, but we are strongly of the opinion that for the Commission directly or indirectly to approve a scheme which relieves a public utility of very necessary regulation, would make us parties to whatsoever unreasonable exactions or unreasonable practices would be resorted to by this enterprise, and would likewise be a recognition that such a plan may be carried out under even worse circumstances. . . .

NEW YORK

132—Protection from Competition.

Application of the NORTHERN POWER COMPANY, Potsdam, N. Y., for permission to exercise franchise granted by the Village of Antwerp to erect a transmission line to supply electricity for light and power. Decision of NEW YORK PUBLIC SERVICE COMMISSION (2nd D.) denying the application. April 2, 1913.

The town of Antwerp is supplied at present by the Antwerp Light and Power Company, which opposed the application of the Northern Power Company. The present service was shown to be inadequate and unreliable, as it depends upon water power which fails during dry seasons. But the company showed that since the filing of this petition it had taken steps to increase its facilities by adding steam power, and also is negotiating for more water power. The Commission therefore finds that it should be given a chance to make its service adequate, and that competition by the petitioner, the Northern Power Company, should not be allowed.

The decision says:

There is some demand for electric current for power purposes in Antwerp, and the testimony indicates that this demand is liable to be considerably increased. . . . There is not in this case any question that the Antwerp company's rates are excessive, or that the rates of the [Northern Power Company], if it should be permitted to engage in business in Antwerp, would be materially lower than those which have been charged, or will be charged, by the Antwerp company. The Antwerp company is endeavoring in various ways to increase its water power facilities, principally with reference to obtaining power from Lake Bonaparte. . . . If the improvements which have been arranged for by the Antwerp company shall be completed promptly, we are unable to see why that company will not be able fully to serve Antwerp and its locality. . . .

It is certain that, with the introduction of a new company in the village of Antwerp for the purpose of supplying Antwerp with electric light and power, neither company could operate at a profit, and the investment in the Antwerp Light and Power Company's property would be very seriously damaged, and might eventually be destroyed. On the other hand, the people of Antwerp are entitled to good and adequate electric service; and if the Antwerp Light and Power Company shall prove unable or unwilling to supply such service, the propriety of admitting the petitioner into that field is obvious.

31—

VALUATION

ENGLAND

THE NATIONAL TELEPHONE COMPANY, LIMITED, vs. HIS MAJESTY'S POSTMASTER GENERAL. Judgment of the COURT OF RAILWAY AND CANAL COMMISSION, ROYAL COURTS OF JUSTICE, January 13, 1913.

This case is the valuation of the total property of the National Telephone Company, extending over a great part of England, Scotland and Ireland, on the occasion of its purchase by the Government, at the expiration of the Company's license.

The total amount claimed by the company was £20,924,700.

The amount allowed is £12,515,264.

The first matter to be taken up was the appraisal of the physical plant, which was treated as follows:

312—Physical Inventory.

The method adopted of presenting the matter to the Court was to divide the plant into classes, such as "underground" and "overhead," to divide each class into sub-division, e. g., a mile of conduit, or a mile of bare wire, or a pole. The value of the unit, when ascertained, could then be multiplied by the number of such units in the inventory. The valuation of the unit proceeded in this way: it assessed first the price of the material, then the cost of its transport to the site, and then the cost of the labor of placing it in position, up to and including the "gang foreman."

The physical plant cost was agreed upon early in the proceedings, the difference in view as to this part having never been very great, and this agreed sum, together with an agreed item for casualty insurance, became the "fundamental cost," and was agreed at the sum of £10,313,765.

The judgment then proceeds:

It left over for consideration of the Court the highly controversial questions,

314—Overhead Charges.

(A) of the percentages which should properly be added to this sum,

36—Depreciation.

and (B) the depreciation to which the whole cost of construction, when ascertained, should be subjected.

311—Basis of Valuation.

It was agreed that, in cases of this character, the true method of ascertaining value is to consider what it would cost to construct and establish the plant in position, if it did not now exist, and then to depreciate such cost according to the age of its respective parts. This is assessing value on what are called tramway terms. It could, I think, be demonstrated that it is the only possible mode of arriving at the fair value, in cases where there is no buyer but one, and that one must have such plant *in situ*, while the present owner has no further right to work it. . . .

314—Overhead Charges.

Both parties agreed that some percentage addition must be made to the agreed fundamental cost; they further agreed that nothing had been included in the above sum for the following matters alleged by the Company to be necessary items of expense:

1. Ordering and storing material other than certain temporary storage.
2. Obtaining wayleaves.
3. Local engineering supervision.
4. Local administrative or district supervision.
5. Head office engineering.
6. Head office administration.
7. Contractor's profits (as distinguished from manufacturer's profits.)
8. Rent of premises for erection of exchange equipment — wayleave payments — maintenance and insurance of plant until it becomes revenue earning.
9. Contingencies, except so far as covered by columns A and C of the agreement.
10. Interest during construction.
11. Cost of raising capital.

A further head of claim, viz., "Obtaining subscribers' agreements" [i. e. contracts] was not mentioned in the document. [But was later introduced and allowed for.]

The sum claimed by the Company for these items amounted to 75.9 per cent of fundamental cost. The judgment allows a sum equal to approximately 26 per cent.

36—Depreciation.

The method of computing depreciation adopted was the straight line method, as being the most fair in determining the value to a purchaser, though the sinking fund method is judged to be the preferable one to use in carrying a depreciation account in the actual conduct of a business. The sum deducted for depreciation equalled approximately 29% on the fundamental cost.

268—

PUBLIC SERVICE LAWS

OKLAHOMA UTILITIES BILL, *Electrical World*, April 19th, 1913. p. 818. The law under which the Oklahoma Corporation Commission has operated for several years, was ambiguous in parts, and has been at times construed as not granting jurisdiction over electric railways, and electric light, gas and water companies.

A recent case in point being the decision of the Supreme Court of Oklahoma, in the appeal of the Shawnee Gas and Electric Company from the Corporation Commission's order fixing gas rates, 180 Pac. 127. The Court granted the writ of prohibition of the Commission's order, as applied for by the Company, and in the decision states:

Neither the foregoing section nor any other section of the Act [Sess. Laws, 1907-08, p. 750] in specific terms confers upon the State Corporation Commission any jurisdiction over Public Service Corporations.

A more clear and comprehensive bill, prepared under the direction of the Corporation Commission's secretary, was lately passed by the legislature and signed by the Governor. It specifically grants to the Commission

general supervision over all public utilities, with power to fix and establish rates and to prescribe rules, requirements and regulations affecting their services, operation and management, and the conduct of their business. . . . Full visitatorial and inquisitorial power to examine such utilities and keep informed as to their general condition, their capitalization, rates, plants, equipments, apparatus and other property owned, leased, controlled or operated, the value of same, the management, conduct, operation, practices and service.

It also empowers the Commission to prescribe accounting methods, and to institute examinations, meter tests, etc.

Municipal plants are excepted from state regulation, this serious defect being due to the Commission's fear that opposition would be developed which might jeopardize the whole bill. It was attempted to correct this fault by offering an amendment, on the last day of the legislative session, bringing municipal plants under the jurisdiction of the Commission, the amendment failing by only one vote. It is hoped that it will be passed at the next regular session two years hence.

268—Public Service Laws.

NEW INDIANA UTILITIES LAW, Public Service Regulation, 3 pages, April, 1913, p. 163.

This is an abstract giving the main provisions of the new utility commission law of Indiana, regarding which a statement of comparison with the Wisconsin law and comment on the most significant clauses was given in 3 RATE RESEARCH 12.

REFERENCES**RATES****41—Cost of Service.**

NEW YORK TO DETERMINE ECONOMY OF ISOLATED-PLANT AND CENTRAL STATION SERVICE FOR MUNICIPAL BUILDINGS, Electrical World, April 26, 1913, p. 866.

A test which is to run for a year is being conducted upon the steam and electric generating plants of the Hall of Records, New York City. They comprise an electrical generating plant of four units, with an aggregate rating of 450 kilowatts, and boiler equipment of five water-tube boilers, with a combined rating of 1600 horse-power, and since last fall have, in addition to their own building, supplied the City Hall, the City Court, and the County Court Buildings. The new Municipal Building directly opposite has central station service, and the investigation, which is made on the advice of the Bureau of Municipal Research, and conducted by a board of supervising engineers, with Professor Herman Diederichs of Cornell University in direct charge, is being made to find out the relative cost of central station service, as compared with isolated plant power.

41—Cost of Service.

WHAT THE RATES CHARGED BY CENTRAL STATIONS MUST PAY FOR, by NEWTON HARRISON. The Central Station, 3 pages, April, 1913, p. 309.

Points out how in any given electricity plant and business, the relation of the external equipment costs, to costs of the station proper, affects the rates which must be charged, and states that the question of rates hinges upon the dividends on stock, interest on bonds, insurance for fire or casualty, the rate of depreciation, cost of repairs, cost of fuel, cost of publicity, cost of wasted power, and the allowance that should be made for innovations, such as a new system of machinery and operation. This question must also include the salary list, the expense of which may be a source of increased income in total, or may represent a percentage of dead wood.

41—Cost of Service.

A STUDY OF COMPARATIVE UP-KEEP COSTS OF HORSE DRAWN VEHICLES AND ELECTRIC MOTOR TRUCKS, abstract of a paper read before the American Society of Mechanical Engineers, by W. R. NEATZ, Engineering and Contracting, 1 2-3 pages, April 23, 1913, p. 461.

This gives a report, with ten tables, of the comparative costs of team-drawn and motor trucks, the latter having been substituted for horse-drawn trucks at the Government Printing Office, Washington, as the result of an investigation of the comparative costs. All the items of expense connected with both types of trucking are tabulated, and show large savings by use of electric trucks.

61—Character of Service.

POWER COSTS FOR MINING, by JAMES W. MALCOLMSON, a paper read at a recent meeting of the American Institute of Mining Engineers. *Journal of Electricity, Power and Gas*, 11½ pages, April 19, 1913, p. 355.

This gives a comparison of the costs of steam, gas and electric power for driving alternators in the plant of the El Tigre mine in Mexico. Computations of cost were worked out from details of the investment necessary to supply a total of 750 horse-power, by means of (1) wood-burning gas producers, and gas engine plant at the mine; (2) a steam power plant, using Texas or California oil at \$1.70 per barrel, at the nearest railroad point 30 miles away, and transmission of electric power to the mine; (3) a hydro-electric plant and transmission line from a dam on a river 10 miles distant; (4) purchased power from a turbo-generator plant at Douglas, Ariz., 65 miles away. The last named was found to be most economical.

An arrangement was made whereby this company agreed to install exhaust turbine generators in its plant, the installation to be paid for by the Tigre Mining Company, and the power sold on a sliding scale, varying with the amount taken and the cost of fuel oil in Douglas. In August, 1912, this amounted to 0.96 cent per kilowatt hour at Douglas.

It was estimated that the power from Douglas would cost slightly more than \$70 per year per horse-power, while the next lowest cost from one of the other sources, would be \$105 per year per horse-power.

The transmission is peculiar on account of the small quantity of power, an average of 616 horse-power, being transmitted such a long distance as 65 miles.

61—Character of Service.

PURCHASED POWER IN COAL MINES, by H. C. EDDY, a paper presented before the American Institute of Electrical Engineers, Pittsburg, Pa., April 18, 1913. *Electrical Review*, 1¼ pages, April 26, 1913, p. 847.

This discusses the several advantages of purchased power over individual plants, or steam plants, for mine operations. The benefits to the central station may be summed up as the considerable amount of power used; the off-peak load; the extensive application of synchronous motors, tending to raise the plant power-factor, with the attendant advantages. Some of the savings and advantages to the mine operator are reduction of fixed charges on investment; reduction of actual operating costs due to the fact that only power used is paid for, without stand-by charges due to intermittent operation; a considerable increase in the output of mining machines and locomotives due to maintenance of speed through normal voltage; reduction of labor costs for attendance; elimination of high maintenance, repair and replacement costs for boilers, piping and engines; additional coal available for sale.

61—Character of Service.

ELECTRICITY AS A FACTOR IN PROGRESSIVE AGRICULTURE, a paper presented before the Annual Convention of the Missouri Electric, Gas, Street Railway and Water Works Association, Kansas City, Mo., by E. P. Edwards. *Electrical Review*, 12-3 pages, April 26, 1913, p. 864.

This paper tells of the great economies which are being introduced into farming by electricity. One of the greatest expenses on the farm is the cost of labor, which may be cut down very extensively by substituting electric power for animal and manual labor. Comparisons are given of the initial costs and operating expenses of the equipment necessary for performing various farm operations, as for example, plowing, by horse teams as compared with electric power, showing enormous savings. The author stated that a composite curve had been made, which showed that the demands in a well-supplied farming community make a very good load.

INVESTMENT AND RETURN**31—Valuation.**

PHYSICAL VALUATION OF RAILROADS. *The Nation's Business*, April 15, 1913, p. 4.

This comments on the vastness and importance of the work of the valuation of all the railroads of the United States, as provided for in the federal railroad valuation act, quoting Chairman Clark of the Interstate Commerce Commission, who states that the Commission is not staggered by the order, but that the work will be done with as much despatch as is consistent with accuracy and thoroughness, and though it will take a long time, and require a great deal of funds, these will be provided as found necessary by Congress.

H. Bortin, writing in the *Railway Age Gazette* of April 11, has urged a National Valuation Convention, as the co-operation of all the railroads with the Interstate Commerce Commission is necessary, and by this means, uniform definitions and standardization of all the important terms covering the factors of such valuation, may be established, which is indispensable for the proper prosecution of the work. He suggests that the convention be constituted by valuation engineers from every railroad system in the country, and the valuation committees of the American Society of Civil Engineers, the American Railway Association, the American Railway Engineering Association, the National Association of Railway Commissioners, a valuation committee from the Interstate Commerce Commission, and of private consulting engineers who have done valuation work.

Information has been received that presidents, or other executive officers, of fifty-two railroads of the country, including all the great systems, met in New York April 24, in conference over the probable operation and effect of the bill, and appointed a permanent committee of eighteen members, with President Samuel Rea of the Pennsylvania Railroad as chairman.

This may be regarded as the first step of the railroads in preparing for the co-operation with the Interstate Commerce Commission, which the law requires.

31—Valuation.

REPORT ON STREET RAILWAY SYSTEM OF KANSAS CITY, Mo., by BION J. ARNOLD. *Electric Railway Journal*, 4½ pages, April 19, 1913, p. 716.

This is an abstract of a report of an appraisal ordered by the United States Circuit Court, Kansas City, of the total property of this street railway system, and its apportionment between the different municipalities served. The valuation was wanted for adoption in a contract for new franchises, and recommendations for improvements were also submitted, and fair ordinance provisions suggested.

The appraisal was made on the basis of cost of reproduction, less depreciation, and an allowance for intangible value, consideration being given to the protection of the investment and to deferred earnings upon actual investment, the result comprising the fair market value. The writer makes a similar recommendation for decapitalizing, from surplus earnings, all the portion of the capitalization not represented by physical property, to ultimately permit the reduction of fares, which he made in the case of the Chicago City Railway Company.

34—Rate of Return.

REASONABLE RETURN, by WILLIAM H. WINSLOW, The New York Times Annalist, 1 page, March 10, 1913, p. 251.

This is an abstract of a brief prepared for the Wisconsin Railroad Commission, in a case of investigation of the rates of a company represented by the writer, and outlines a plan for a more or less exact method of computing the return which a utilities company ought legally to get from its investment. The calculations are based upon actual experience of the conditions of business at different periods over a dozen years; four per cent is taken as a basic rate of "pure interest" and different percentage fractions are added to this to compensate for difficulties and risks. An interesting tabulation is given in which a reasonable rate of return is worked out for the company in question by this method for water, gas and electricity service, and shows a lessening from 10 per cent for water, 11 per cent for gas, and 17 per cent for electricity in 1896, to 7, 7½, and 8 per cent for these, respectively, in 1911, due to the decrease of risks, and lessening of difficulties of marketing securities.

The various items to be added to "pure interest," namely, an allowance to cover narrow market, and lack of established sale price, to cover absence of large surplus earnings, inherent risks of the business, state of the art, etc., short-time and non-exclusive franchises, and community hazards, are defined, and their relative effects as risks are shown. An automatic allowance for going value is needed to protect investment rights when reasonable return declines with diminishing hazards.

34—Rate of Return.

A "FAIR RATE OF RETURN" FOR PUBLIC UTILITIES AS AFFECTED BY "UNEARNED INCREMENT." Editorial, Engineering News, 2 pages, April 24, 1913, p. 858.

States that the "fair value" of property being used for public convenience, on which a proper return is to be allowed, is not necessarily the complete actual value at the moment, as the United States Supreme Court decision, *Smith vs. Ames*, 160 U. S., 466, which lays down the law on this question, specifies that this fair value is to be estimated after due consideration, among other things, of (1) "the present as compared with the original cost of construction," and (2) "the amounts of bonds and stock." If these two items showed that a valuable plant has been built up by earnings, rather than wholly from investments by stock and bondholders, who had meanwhile received steadily a fair

return on their investment, some deductions from the book valuation of the company's property as a basis for rate-fixing would be apparently in agreement with the Court's decision.

The New York Commission (1st D) ruled in the Kings County Gas Light Co. case, that another increment in value, namely, that added to the pipe lines by new pavements built over them at this city's expense, may not properly be included in fair value, and two recent Massachusetts Commission decisions, the Haverhill Gas Light Co., see 2 RATE RESEARCH 333, in which some of the property of the company, though it was found by the Commission to have been provided by the investment of surplus earnings accumulated in past years, was admitted as proper in the present fair value, and the Attleboro Gas Light case, 3 RATE RESEARCH 36, in which it was held that a corporation was not entitled to earn on its appreciated land value, or on investment of profits which it had been able to make solely through the growth of the community which it serves, are both significant of the attention which "fair value" is now receiving in regulation cases.

552—Lamp Renewals.

FREE RENEWAL OF TUNGSTEN LAMPS, editorial, and REDUCTION IN TUNGSTEN LAMP PRICES FORESHADOWS FREE RENEWALS, article, Electrical World, April 26, 1913, p. 861, and p. 865.

The manufacturers of tungsten lamps have decided on a further price reduction, the amount of which is not yet announced, but which will probably be about 10 per cent, to become effective about July 1. This will doubtless ensure that free renewals of tungsten lamps of the higher ratings, a policy that has been advocated by many managers, and by the lamp committees of the national associations, will soon be adopted. If smaller sizes of lamps, as for instance the 25-watt ones, are left on the present basis, that is to be paid for by the customers, while the 80-watt lamps are offered free, there is little doubt that the latter will be taken often enough to result in more light, increased consumption, and greater satisfaction all around.

MUNICIPALITIES.

81—Municipal Regulation of Utilities.

STATE VS. MUNICIPAL REGULATIONS OF PUBLIC UTILITIES, by COMMISSION PRESIDENT JOHN M. ESHLEMAN of the CALIFORNIA RAILROAD COMMISSION. National Municipal Review, 121½ pages, January, 1913, p. 11; and by LEWIS R. WORKS, 7 pages, p. 24.

The first address, briefly abstracted in 2 RATE RESEARCH 29, after its delivery before the National Municipal League, appears again as above, and is an able and thorough presentation of the case for general state regulation of all utilities.

The second paper by a former chairman of the Los Angeles Board of Public Utilities, while approving State regulation for utilities operated outside of incorporated cities and towns, and for utilities in the smaller cities and towns, as the questions of principle involved in controlling a small utility are as big as in the case of the largest one, and there will not usually be present in those places the ability, nor the willing money to adequately handle the subject, maintains that large cities should be in the highest degree possible self-governing, and are better fitted to solve their own problems, including those of their utilities, than a State commission.

83—Municipal Ownership.

BOND ISSUE FOR LOS ANGELES MUNICIPAL DISTRIBUTION SYSTEM DEFEATED. *Electrical World*, 11½ pages, April 26, 1913, p. 867.

The City Council of Los Angeles favored a bond issue of \$6,500,000 to be used in constructing electric plants to generate electricity at favorable sites along the great aqueduct, which will bring water to the city from Owens River, a distance of about 250 miles, and in building a distribution system to parallel the lines of the companies supplying the present service, as the latter, because of restrictions in the trust deeds securing their various bond issues, were unable to sell their lines outright to the city, as demanded by the city officials. The companies made four proposals to the Council, either (1) to purchase the energy at a fair price, (2) to become the distributing agents for the city, which would then deal directly with the consumers in all matters pertaining to the service, (3) to lease their distributing systems to the city, or (4) to handle the aqueduct energy on a partnership basis. These proposed measures, considering that the Council has the right to fix the rates which the companies are allowed to charge, offered ample protection to the public in the way of assuring to them the benefit of the cheapness of this electric production, and the majority of the business men were opposed to the bond issue. A Voters' Educational Association was formed, and the companies also instituted an educational campaign, in which daily newspaper statements and letters to their customers giving a frank and complete statement of the facts were utilized, with the result that at an election held on April 15, the proposed bond issue was defeated.

GENERAL**74—Technical Company Data.**

HAND BOOK FOR USERS OF CENTRAL STATION LIGHTING AND POWER SERVICE, Issued by the Commonwealth Edison Company, Chicago, 32 pages. *Electrical World*, April 26, 1913, p. 886.

This is the revised 1913 edition of the hand book, and contains much useful and convenient information for electricity consumers.

95—Progress in the Art.

HARMONIZING VARYING FREQUENCY NETWORKS, editorial, *Journal of Electricity, Power and Gas*, April 19, 1913, p. 365.

It is to be regretted that Central and Northern California are generating in 60 cycle frequency, while in Southern California, it is 50 cycles for the most part. If only one and the same frequency were used, state-wide advantage could be taken of joint operation and the continuity of service resulting would unquestionably strengthen the permanency of electrical consumption.

Standardizing apparatus has in former years totaled millions in additional expenditure. The railroad gauge, the air brake, and a thousand other instances may easily be cited. Yet no one will gainsay the fact that in each case results have fully justified this expenditure. To readjust or harmonize the varying frequencies of Western hydroelectric networks seems a Herculean task, yet it is a move fully justifying serious consideration.

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May 7, 1913

No. 6

RATE RESEARCH



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RATE RESEARCH COMMITTEE
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NATIONAL ELECTRIC LIGHT ASSOCIATION
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CONTENTS		Page
RATE RESEARCH COMMITTEE		83
COMMISSION DECISIONS		83
New York	COURT DECISIONS	83
		84
Pennsylvania		84
New York	GENERAL POWERS OF COMMISSION	84
		85
New York	FORM OF ACCOUNTS	85
		85
California	ANNUAL REPORTS	85
		85
Connecticut	RATE RESEARCH CLASSIFICATION	85
	REFERENCES	86
		92
Rates		92
Investment and Return		93
Municipalities		93
General		94
		95

Rate Research

Vol. 3.

CHICAGO, MAY 7, 1913

No. 6

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATE RESEARCH COMMITTEE

MR. J. D. LYON, formerly Sales Manager of the UNION GAS AND ELECTRIC COMPANY of Cincinnati, has terminated his connection with that company, and tendered his resignation as a member of the RATE RESEARCH COMMITTEE.

COMMISSION DECISIONS

41—Cost of Service.

The NEW YORK PUBLIC SERVICE COMMISSION (2nd D.), has ordered a reduction in the price of electricity charged by the Suffolk Light, Heat and Power Company, in the village of Southampton, L. I., from 25 cents per kilowatt-hour, to summer residents taking service confined to the summer months, to a rate of 22 cents per kilowatt-hour, with a prompt payment discount of 10 per cent. After the expiration of two years the rate is to be 20 cents, with discount of 10 per cent.

224—Rate Regulation.

The New York Public Service Commission (1st D.), upon the recommendation of Commissioner Milo R. Maltbie, has effected an arrangement with the Newtown Gas Company of Queens, for a reduction in the price of gas charged by that company, from \$1.00 to 95 cents per 1,000 cubic feet. This reduction is to hold good for one year, namely, until May 1, 1914. As a result of the arrangement the Commission has dismissed the complaint of more than 100 gas consumers who petitioned the Commission to order a reduction in the rates. The complainants accepted the proposition to try the 95 cent rate for one year, and the proceeding was dismissed without prejudice to the rights of either party after May 1, 1914.

EDITORIAL NOTE.—All indented matter is direct quotation.

COURT DECISIONS

PENNSYLVANIA

228—Franchises.

BELLEVUE BOROUGH et al. v. MANUFACTURERS' LIGHT AND HEAT CO. Suit to Declare Void an Ordinance Providing for Free Gas Supply to Churches, etc. Decision of Supreme Court of Pennsylvania Sustaining the Ordinance. Jan. 6, 1913. 86 Atlantic, 187.

The ordinance complained of was granted in 1886, and provided for free gas supply to churches, and supply at one-half the estimated cost of other illuminants, and of coal, for lighting and heating, respectively, for the public schools and for municipal uses. The board of directors passed a resolution surrendering this franchise, as the company had acquired all the rights and franchises of the Baden Gas Company, which the borough had granted free of such conditions. But the court maintains that while the company still makes use of the gas mains and pipes laid under the old franchise, it must observe its conditions.

While it is then in present exercise and enjoyment of the benefits conferred through the ordinance, may it be heard to assail the legality of the ordinance, in order to escape from payment of the consideration it promised, and which in fact was a condition of the grant? We think not. . . .

One cannot be permitted, while enjoying a valuable privilege through an ordinance establishing a contract to which he was a party, be heard to repudiate the ordinance, except at the expense of honesty and fair dealing.

NEW YORK

58—Terms and Conditions.

HOLLANDER v. WESTCHESTER LIGHTING COMPANY. Suit for Cutting Off Gas Supply. On Company's Demurrer to the Complaint. Decision of New York Supreme Court Overruling the Demurrer. March 14, 1913. 140 N. Y. Supp. 544.

The decision says:

Where a lighting corporation cuts off an existing supply of a consumer, the burden is on the corporation to justify its act. . . . Inasmuch as the defendant had undertaken to and did supply gas to the plaintiff, the burden rests upon it to justify its act in discontinuing that service without the consent of the plaintiff, by alleging and proving either an indebtedness to it by plaintiff, the distance of plaintiff's premises from a gas main, or some other good and legal reason.

22— GENERAL POWERS OF COMMISSIONS

THE NEW YORK PUBLIC SERVICE COMMISSIONS have assumed jurisdiction of baggage and transfer companies. The new law places under the jurisdiction of the Commission all baggage and transfer companies which are operated wholly or in part upon, or in connection with, a railroad or a street railroad. It gives to the Commissions jurisdiction over such companies to the same extent as it now has over railroad corporations and street railroad corporations, in matters pertaining to rates, service and capitalization. The same provision made in relation to the liability for loss, damage or injury to property in transit, which has existed in relation to railroads, is now applicable to baggage and transfer companies.

222.1— FORM OF ACCOUNTS

UNIFORM CLASSIFICATIONS OF ACCOUNTS FOR ELECTRICAL CORPORATIONS, for Gas Corporations, and for Water Corporations, prescribed by the CALIFORNIA RAILROAD COMMISSION.

These are the systems of accounts adopted by the Commission October 23, 1912, and effective January 1, 1913. The classification for electric companies is a pamphlet of 69 pages, and gives definitions and instructions for keeping the accounts.

252— ANNUAL REPORTS

FIRST ANNUAL REPORT OF THE CONNECTICUT PUBLIC UTILITIES COMMISSION for the Year Ending June 30, 1912, 768 pages.

This report consists mainly of tables of information of the general conduct and financial condition of the public service corporations of the state, as shown in their reports to the commission as ordered by the new law.

The only decision connected with electrical companies is that of the complaint against the East Hadden Electric Light Company, p. lxvi, that its plant and equipment were inadequate and unsuited to the public need. An inspection showed the service to be inferior, and all parts of the equipment in need of repair or replacement, and the business conducted at a loss. Improvements were ordered, and flat rates, the only system of charging used, abolished, and metered service directed to be substituted.

RATE RESEARCH CLASSIFICATION

The handling of the data covered by RATE RESEARCH in the past six months, has suggested some rearrangements and additions to the tentative outline of the classification as given in 2 RATE RESEARCH 10. The following is the classification as now in use.

MAIN CLASSES

1. PUBLIC SERVICE.
2. PUBLIC SERVICE REGULATION—LAW AND PRACTICE.
3. INVESTMENT AND RETURN.
4. RATE THEORY.
5. RATE PRACTICE.
6. RATE DIFFERENTIALS.
7. SCHEDULES AND SERVICE.
8. MUNICIPALITIES.
9. GENERAL.

1—PUBLIC SERVICE.

11—ESTABLISHMENT.

- 111—Incorporation.
- 112—Franchises.
- 114—Eminent Domain.
- 115—Use of Public Highways.

12—PROTECTION OF THE PUBLIC

- 121—Proper Service.
- 122—Just and Reasonable Charges.

129—Protection from Default In Public Service.

- 129.1—Discrimination.
- 129.2—Inadequate Facilities.
- 129.3—Refusal of Service.

13—PROTECTION OF THE CORPORATION

- 131—Protection from Confiscation.
- 132—Protection from Competition.

139—Limitations to Service.

14—RELATIONS OF CORPORATIONS WITH EACH OTHER.

- 141—Reorganization.
- 142—Reincorporation.
- 143—Co-Operation.
- 144—Mergers.
- 145—Dissolution of Mergers.

19—GENERAL HISTORY OF ELECTRIC UTILITIES.

199—General History of Utilities.

2—PUBLIC SERVICE REGULATION—LAW AND PRACTICE.

21—ORGANIZATION OF COMMISSIONS.

- 211—Qualifications.
- 212—Officers.
- 213—Employees.
- 214—Expenses of Commissions.

22—GENERAL POWERS OF COMMISSION.

- 221—Capitalization.
 - 221.1—Issue of Stock and Bonds.
- 222—Accounts.
 - 222.1—Form of Accounts.
 - 222.2—Audit of Accounts.
- 223—Reports.
- 224—Rates.
- 225—Schedules.
 - 225.1—Filing of Schedules.
- 226—Service.
 - 226.1—Improvement of Service.
 - 226.2—Extension of Service.
 - 226.3—Joint Service.
- 227—Valuation.
- 228—Franchises.
 - 228.1—Approval of Franchises.

23—COMPLAINTS.

- 231—Companies' Procedure.

24—COMMISSION PROCEDURE.

- 241—Investigations.
- 242—Hearings.
 - 242.1—Testimony.
 - 242.2—Depositions.
 - 242.3—Subpoenas and Witnesses.
 - 242.4—Experts.
- 243—Orders.
 - 243.1—Preliminary.
 - 243.2—Final.
 - 243.3—After Rehearing.
 - 243.4—Staying of Orders.
 - 243.5—Enforcement.
 - 243.6—Penalties.
- 244—Rehearings and Appeal.

25—COMMISSION RECORDS.

- 251—Publicity.
- 252—Commission Annual Reports.
- 253—Commission Reports of Decisions.

26—HISTORY AND DEVELOPMENT OF REGULATION.

- 261—Public Service Bills.
- 265—Co-operation of Public Service Companies with Regulatory Bodies.
- 268—Public Service Laws.
- 269—Comparison of Public Service Laws.

3—INVESTMENT AND RETURN.

31—VALUATION.

- 311—Basis of Valuation.
 - 311.1—Original Cost.
 - 311.2—Reproduction Cost New.
 - 311.3—Present Value.
 - 311.4—Market Value.
 - 311.5—Cost Plus Cost of Additions and Extensions.
- 312—Physical Inventory.
- 313—Prices.
- 314—Overhead Charges.
 - 314.1—Promotion.
 - 314.11—Initial Engineering.
 - 314.12—Legal Expense.
 - 314.2—Organization.
 - 314.21—Incorporation.
 - 314.22—Franchises.
 - 314.23—Permits.

- 314.3—Bond Discount.
- 314.4—Construction.
 - 314.41—Engineering.
 - 314.42—Administration.
 - 314.43—Contingencies.
 - 314.44—Contractor's Profit.
 - 314.45—Sub-Contractor's Profit.
 - 314.46—Piece Meal Construction.
- 314.5—Interest During Construction.
- 314.6—Taxes and Insurance During Construction.
- 314.7—Early Experimental Work.
- 314.8—Deficits in Early Earning.
- 314.9—Special Advertising and Soliciting.
- 315—Intangibles.
 - 315.1—Going Value.
 - 315.2—Good Will.
 - 315.3—Special Contracts.
- 318—Working Capital.
- 319—Land.
- 32—APPRECIATION.
- 33—CAPITALIZATION.
 - 331—Amount of Investment.
 - 331.1—For Rate Making Purposes.
 - 331.2—Total Capitalization.
 - 331.3—Market Value of Stocks and Bonds.
 - 331.4—Original Book Cost.
 - 332—Notes and Other Issues for Less Than One Year.
 - 335—Issues of Stocks and Bonds.
 - 337—Stocks Without Par Value.
- 34—RATE OF RETURN.
 - 341—Bond Interest.
 - 342—Dividends.
- 35—TOTAL REVENUE, EXPENSE, INCOME.
 - 351—Revenue.
 - 352—Expense.
 - 353—Income.
 - 354—Surplus.
- 36—DEPRECIATION.
 - 361.1—Wear and Tear.
 - 361.2—Inadequacy.
 - 361.3—Obsolescence.
 - 362—Accrued Depreciation.
 - 365—Annual Rate of Depreciation.
 - 365.1—Straight Line Method.
 - 365.2—Sinking Fund Method.
 - 366—Depreciation Funds.
 - 369—Depreciation Tables.
- 37—PROFIT SHARING.
 - 371—Sliding Scale of Rates and Dividends.
 - 372—Employes Profit Sharing.
 - 373—City Profit Sharing.
 - 374—Pensions, Sick Benefits, Etc.
- 38—TAXATION.
 - 381—City.
 - 382—State.
 - 383—City Compensation.
 - 384—Federal Income Tax.

39—GENERAL INVESTMENT AND RETURN INFORMATION.

- 391—Reports of Companies.
- 395—Proceedings of Technical Associations.
- 399—Comparative Financial Statistics.

4—RATE THEORY.

41—COST OF SERVICE.

- 411—Apportionment of Expense.
 - 411.1—Customer Charges.
 - 411.2—Demand Charges.
 - 411.3—Energy or Output Charges.
- 419—Return for Different Character of Service.

45—VALUE OF SERVICE.

- 451—Increment Costs.

49—HISTORY AND DEVELOPMENT OF ELECTRIC RATE THEORY.

5—RATE PRACTICE.

51—FORMS OF RATES.

- 511—Flat Rates.
- 512—Consumers' Output Rates.
- 513—Meter Basis.
 - 513.1—Straight Line Meter Rate.
 - 513.8—Block Meter Rate.
 - 513.9—Step Meter Rate.
- 514—Demand Basis.
 - 514.1—Hopkinson Rate.
 - 514.11—Multiple Hopkinson Rate.
 - 514.3—Wright Demand Rate.
 - 514.31—Multiple Wright Demand Rate.
- 514.5—Three Charge Rate.
 - 514.51—Multiple Three Charge Rate.

52—DETERMINATION OF DEMAND.

- 521—Application of Demand.
 - 521.1—Width of Demand.
 - 521.2—Use for Rate Purposes.
- 522—Actual Measurement of Demand.
 - 522.1—Maximum Demand Indicators.
 - 522.2—Graphic Instruments.
 - 522.3—Tests.
- 523—Estimated Demand.
 - 523.1—Connected Load Basis.
 - 523.2—Area of Premises Basis.
 - 523.3—Number of Rooms Basis.
 - 523.4—Number of Outlets Basis.
 - 523.5—Taxable Value Basis.

53—DISCOUNTS.

- 531—Prompt Payment Discounts.
- 532—Delayed Payment Penalty.
- 533—Quantity Discounts.
- 534—Length of Contract Discounts.

54—MINIMUM CHARGE.

55—LAMPS.

- 551—Initial Supply.
- 552—Renewals.
- 553—Allowance When Not Supplied.
- 554—Sale Price.

56—STANDARD RIDERS.

57—TERM OF CONTRACT.

58—TERMS AND CONDITIONS.

59—MEASUREMENT OF ENERGY.

6—RATE DIFFERENTIALS.

61—CHARACTER OF SERVICE.

611—Light.

- 611.1—Residence.
- 611.2—Commercial.

611.5—Wholesale.

612—Power.

- 612.1—Small Power.
- 612.2—Large Power.
- 612.3—Unrefined.
- 612.4—Distribution Economies.

613—Combined Light and Power.

614—Heating and Cooking.

615—Feature Rates.

615.1—Limited Hour Service.

615.2—Development Rates.

616—Official or Government Rates.

616.1—Street Lighting.

617—Breakdown or Auxiliary Service.

62—FACTORS AFFECTING RATES.

621—Demand Factor.

622—Diversity Factor.

623—Load Factor.

624—Power Factor.

625—Distance Factor.

626—Seasonal Factor.

627—Conjunctional Use.

65—DISCRIMINATION.

7—SCHEDULES AND SERVICE.

71—SCHEDULES.

- 711—Form of Schedules.
- 712—Publicity of Schedules.
- 713—Filing of Schedules.
- 714—Notice of Change of Rates.
- 715—Time of Effect.

72—RATE SCHEDULES.

73—TERMINOLOGY.

731—Electric Definitions.

733—Classifications.

733.1—Dewey Decimal System.

733.2—Rate Research System.

735—Technical Data.

735.1—Moonlight Schedules.

735.2—Daylight Schedules.

735.5—Meters.

738—Bibliographies.

739—General Data.

74—TECHNICAL COMPANY DATA.

75—COMPARATIVE COMPANY DATA.

77—SAFETY OF SERVICE.

771—Inspection.

772—Reports of Accidents.

779—Smoke and Health Regulation.

78—SERVICE.

781—Adequacy.

781.1—Increase of Facilities.

782—Efficiency.

782.1—Regularity.

782.2—Voltage Regulation.

783—Lamp Efficiency.

784—Accuracy of Standards.

785—Tests and Accuracy of Meters.

789—Kind of Service.

8—MUNICIPALITIES.

81—MUNICIPAL REGULATION OF UTILITIES.

82—STATE REGULATION OF MUNICIPAL UTILITIES.

83—MUNICIPAL OWNERSHIP.

831—Purchase by Municipality.

84—MUNICIPAL OPERATION.

89—MUNICIPAL STATISTICS.

9—GENERAL.

91—PROMOTION AND GROWTH OF THE BUSINESS

92—ECONOMY AND EFFICIENCY.

95—PROGRESS IN THE ART.

96—CO-OPERATION.

97—COLLATERAL BUSINESS OF UTILITIES.

98—PUBLIC RELATIONS.

99—EMPLOYEES.

REFERENCES

RATES

4—Rate Theory.

THE PRACTICAL APPLICATION OF THE SELF-ADJUSTING STANDARD FOR RATE-FIXING, by F. K. BLUE. *Journal of Electricity, Power and Gas*, 3½ pages. April 26, 1913, p. 386.

States that a self-adjusting method of rate fixing, which automatically determines the rates to be charged, in accordance with well established economic principles instead of arbitrary and variable opinions of appraisers, may be deduced from three simple rules; (1) the price of the product of an enterprise in one year is based on the market price of the stock in such enterprise during the preceding year; (2) as a protection to the consumer against excessive cost of production due to extravagant management, adjustments are made which cause a gain to stockholders whenever the cost of production is reduced, and a loss when the cost of production is increased; (3) all surpluses and deficits due to the yearly rates that are fixed proving too great or too small are exactly adjusted by a system of perpetual amortization of such quantities between the corporation and the consumer.

A table of such computations worked out for fixing gas rates is given, with explanations and directions for using this method.

41—Cost of Service.

COMPARATIVE OPERATING EXPENSES OF HORSE, ELECTRIC AND GASOLINE COMMERCIAL VEHICLES. *Electrical World*, May 3, 1913, p. 936.

States that the ideal method of comparing expenses of different types of commercial vehicles would be by means of the unit cost per ton-mile. But information enabling this to be done is not often available owing to the variation in methods of figuring cost, by the users of these vehicles who keep records. Tables of such costs for the horse drawn, and for the electric trucks of the Commonwealth Edison Company of Chicago, are here given, and show that the average cost per day per horse vehicle is \$4.91, and per electric vehicle \$7.40, while the former can cover about 15 miles per day in delivery work, and the latter averages about 29 miles per day. Another item of profit in the time saving secured by the electric vehicles, comes from the fact that in transporting men to a job who are paid 40 cents per hour, this additional economy is very considerable. Figures of cost of gasoline vehicles in the delivery service of Marshall Field & Company's department store, give an average of \$14 per day per vehicle. This high figure may be explained by the fact that these vehicles are used in outlying regions of Chicago, where a very large mileage is made. But to equal the cost of the electrics at \$7.40, covering 29 miles per day, it would be necessary for the gasoline vehicles to travel 55 miles per day.

61—Character of Service.

ELECTRICITY FOR GARAGES, illustrated article, *Electrical Review*, 6 pages, May 3, 1913, p. 891.

States that at the present time the electric vehicle affords one of the best opportunities for building up the load-factor in a very gratifying way, and with practically no investment charges. In fact, it is the practice of at least one large company to take on individual charging equipment without providing capacity in transformers, as battery charging is done late at night or early in the morning, when the demand of other consumers is practically nil. In other words, as far

as investment is concerned this battery load is perhaps the most desirable of any class of central-station business.

Load curves showing the daily and monthly consumption of the Commonwealth Edison Company in Chicago for this service, and reports and data sheets from New York, Philadelphia, Boston, and Denver companies, are given showing details of the handling of this profitable business, and interesting information of its rate practice.

61—Character of Service.

ELECTRICAL EQUIPMENT OF A MODERN HOTEL. Illustrated article, *Electrical World*, 31½ pages. May 3, 1913, p. 927.

Describes the electrical installation in a new 28-story New York hotel, with details of its equipment, and its system of control of electric circuits to insure continuity of service. Energy is furnished by a private plant providing for lighting, for the operation of a forced ventilating system, for laundry and refrigerating purposes, for escalators and dumb-waitors and for numerous other purposes, particularly in the kitchen, where no fewer than twenty-five motors are installed for various uses.

INVESTMENT AND RETURN

3—Investment and Return.

RELATIVE EARNINGS OF SECURITIES, statement issued by HENRY L. DOHERTY AND COMPANY, 60 Wall Street, New York, *Electrical Review*, 1¼ pages, May 3, 1913, p. 918.

This is the second statement by this firm giving a comparison of public utility, railroad and industrial securities. The results of the comparisons are shown by curves and graphic charts.

The intrinsic merits of one class of securities as compared with another are dependent, first, on the relative safety of the principal invested, and second, on the relative earnings. Reports of both these factors are shown by the charts.

313—Prices.

PRICE CHANGES AND THE BUSINESS OUTLOOK, *Engineering News*, 5 pages. May 1, 1913, p. 45.

354—Surplus.

LESSONS FROM FLOOD AND CYCLONE; TOO MANY UTILITIES OPERATE UNDER FAIR WEATHER RATES, by W. F. BRASHEARS. *Public Service*, 2½ pages. May, 1913, p. 165.

States that the tendency of the public has been to force rates down, regardless of the effect such reductions have upon the company or the service, and this has resulted in rates for "fair weather" service, that is, rates which are adequate only under ideal operating conditions. The rates are kept so close to the cost of service, that no reserve or surplus is accumulated to take care of such special demands as arise from the destruction of property by storms and floods. The American Telephone and Telegraph Company, because of its policy of setting aside a surplus, its last annual reports showing over three millions in the fund, was able to reconstruct its lines and re-establish its service after the recent flood disasters throughout the country, with the greatest promptness, while some independent companies

without such a state of preparedness, have gone into the hands of receivers, and other companies have been forced to issue securities to cover the cost of restoration.

31—Valuation.

RAILROAD VALUATION BOARD NAMED BY INTERSTATE COMMERCE COMMISSION. *Electric Railway Journal*, May 3, 1913, p. 823.

The Interstate Commerce Commission on April 30, 1913, announced the members of the board of engineers, five in number, who will appraise the physical properties of the railroads of the United States under the law passed by Congress. They are:

R. A. Thompson, employed in railway valuation work by the California State Railroad Commission, and formerly engaged in similar work with the Texas Railway Commission.

Prof. W. D. Pence, chief engineer of the Wisconsin Railroad and Tax Commissions, and an expert in railroad valuation.

J. S. Worley, Kansas City, Mo., a consulting engineer with experience in railway valuation work.

Howard M. Jones, Nashville, Tenn., a consulting engineer in valuation work, and a specialist in bridge engineering.

E. F. Wendt, Pittsburgh, Pa., president of the American Society of Civil Engineers, who is in charge of the engineering work of the Pittsburgh & Lake Erie Railroad.

The board of engineers will meet in a few days to determine the rules which shall govern the valuation.

MUNICIPALITIES.

82—State Regulation of Public Utilities.

STATE REGULATION OF PUBLIC UTILITIES IS ONLY A RETURN TO OLD COMMON LAW METHODS OF CONTROL, by W. L. HUGGINS. *Public Service*, 2 pages. May, 1913, p. 175.

This gives the historical derivation of state regulation in the common law, and its practice in medieval England, and states that since then we have passed through an era of laissez faire, or the let-alone policy, when competition was regarded as a sufficient regulator, to the present-day conditions of combination, monopoly, and state regulation of all industries affected with a public interest. Competition in all public service business has proved to be so uneconomical as to be pronounced impracticable. The author also gives clearly and forcibly the reasons why state regulation is superior to local regulation, the two chief ones may be briefly stated as, first, local regulation cannot be disinterested, as the men who sit in judgment of the rates and service of the utilities are directly and financially interested in the case they are trying, which would disqualify any judge; and second, that the investigation on which a fair decision must rest calls for appraisals, determinations of cost of operation, rates of depreciation and many other factors, requiring the services of expert engineers, accountants and bookkeepers, involving greater expense than the towns and cities are prepared to meet, and far greater than the cost of such work to the state commission, which keeps such a staff employed all the time.

83—Municipal Ownership.

COMMISSION CONTROL AS CURB ON MUNICIPAL OWNERSHIP, by CHAIRMAN GEORGE A. LEE, of the PUBLIC SERVICE COMMISSION OF WASHINGTON. Public Service, 1/2 page. May, 1913, p. 167.

In this address the speaker says that state regulation secures all the benefits and advantages which the advocates of municipally owned utilities desire, without the evils and disadvantages incident to municipal operation, and that the State of Washington, like New York, Wisconsin and Massachusetts, in rejecting the so-called "Home Rule" idea has freed the regulation of utilities from local prejudices, jealousies and influences, and ended the era of the public utility as the football of municipal politics.

83—Municipal Ownership.

THE MEANING OF THE LOS ANGELES BOND ELECTION, Engineering News, 2 pages. May 1, 1913, p. 917 and p. 931.

This gives an analysis of the recent election returns on the proposed bond issues, noted in 3 RATE RESEARCH 80, and comment on the electricity supply situation in Los Angeles.

GENERAL**19—General History of Electric Utilities.**

THE PUBLIC SUPPLY OF ELECTRIC POWER, by G. L. ADDENBROOKE. The Cantor Lectures, delivered before the Royal Society of Arts. London, 1909, 43 pages.

These lectures, after a brief review of the position of the electrical power supply in the United Kingdom, give a summary of the present usage in the matters of power rates, the increasing electrification of power in all industries, types of equipment, prime movers, distribution systems, with tables of costs of the various departments of operation, estimates of the economies secured, and statements of the manifold improvements and advantages through extensions of centralized supply to large areas by means of interconnected groups of stations, and the probable developments in the electricity business. Among the obstacles cited to the introduction of electric supply, is the conservatism which in the past hindered railroad development, and the fact is mentioned that history repeated itself in this matter, and the towns in England which offered an opposition to railways in the early days which has continued to be a detriment to these localities ever since, offered similar resistance, with legal impediments and vetoes by local authorities, to the electric power installation, the motive often being that municipalities wished to reserve the rights to all such undertakings to themselves.

552—Lamp Renewals.

FREE RENEWALS OF TUNGSTEN LAMPS, Editorial, Electrical Review, May 3, 1913, p. 885, and p. 899.

The Hartford Electric Light Company has instituted the policy of giving free renewals, restricted to one per socket per year, of tungsten lamps in sizes 60, 100, 250, 400 and 500 watts. This is probably a forerunner of similar procedure on the part of a large number of central stations, as the results to be anticipated are better illumination, and in the end increased consumption, when the customers realize the improvement in lighting to be gained at a lessened cost.

735.5—Meters.

ELECTRICAL INSTRUMENTS AND METERS IN EUROPE, by H. B. BROOKS. Pamphlet Issued by the Department of Commerce and Labor, Washington, D. C., 88 pages.

This gives information in regard to organization, methods, and products of thirty-one principal European manufacturers of electrical instruments and meters.

738—Bibliographies.

PUBLIC UTILITY REFERENCES, Compiled by F. N. MORTON, Special Libraries, 3½ pages. February, 1913, p. 39.

This is a compilation of references to public utility articles in the technical journals for 1912, and to date. It includes most of the valuable contributions on rates, valuation, accounting, capitalization, municipal ownership, depreciation, competition, regulation and commissions.

91—Promotion and Growth of the Business.

MONOPOLY IN ENERGY SUPPLY, editorial, Electrical World, May 3, 1913, p. 913.

The recent activities in Illinois and elsewhere, in creating networks of transmission lines supplying energy over large areas for all purposes, have renewed discussion of the relative costs of this means of supply as compared with smaller separate plants. The only element of greater cost is the transmission-line investment, which is high in such a centralized system, as against the higher operating cost, and higher fixed charges on the first cost, of local generating plants. The load and diversity factors of the consolidated system bring in great economies, not to be obtained in individual plants. The success of the network system with large central stations, will depend upon operating on a much larger scale than heretofore, on the building up of motor business not before obtained or obtainable by smaller central stations, and on obtaining lighting and motor business from farms and intermediate towns along the transmission lines, where there has been no electric service heretofore.

98—Public Relations.

COMMUNITY AND UTILITY CONDITIONS; RELATIONS WHICH SHOULD EXIST BETWEEN PUBLIC AND COMPANIES, by MORRIS KNOWLES, Public Service, 1 1/3 pages, May, 1913, p. 177.

States that three theories of the attitude of government toward industry have grown up and attracted supporters; (1) proposes the overthrow of the tendencies that have made for large scale production and consolidation, and a return to the days of small industrial units and free competition; (2) proposes the ownership and operation of all industry by the government, an attempt fraught with many dangers; (3) proposes to sanction consolidation, and to secure for the people its benefits, without its potential evils, by a system of regulation based primarily on social justice.

The latter commends itself as the best solution of the problem, and has already been of great benefit in improving relations between the public and utilities. The things relied upon by the most progressive companies to secure the best relations with their patrons are, briefly: good service; freedom from discrimination; rates as low as is consistent with such a return on the investment as will protect property rights and encourage exercise of energy, ingenuity and thrift in the public service; wages and working conditions for employes such as will promote a desirable standard of citizenship; faithful performance of agreements; courteous treatment of the public by employes at all times; strict obedience to law and avoidance of politics; and a thoroughly public spirited attitude on the part of the company and its officials in all matters affecting the public welfare.

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No. 7

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CONTENTS		Page
RATES		99
Rate Schedules, England		99
COMMISSION DECISIONS		99
Maryland		99
Nevada		101
COURT DECISIONS		102
Iowa		102
Vermont		103
New Jersey		104
Illinois		105
Arkansas		106
Oregon		107
Nebraska		108
REFERENCES		109
Rates		109
Investment and Return		109
Municipalities		111
General		112

Rate Research

Vol. 3.

CHICAGO, MAY 14, 1913

No. 7

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES

72—

RATE SCHEDULES.

The following rate for residences has been adopted by the CITY OF SHEFFIELD, ENGLAND:

Rate

Demand Charge

10 per cent of assessment value of the premises, per year.

Energy Charge

1½d per kilowatt-hour.

COMMISSION DECISIONS

MARYLAND

789—Kind of Service.

Complaint against the CONSOLIDATED GAS, ELECTRIC LIGHT AND POWER COMPANY OF BALTIMORE, for Refusal to Supply Alternating Current. Decision of the MARYLAND PUBLIC SERVICE COMMISSION, Dismissing the Complaint. April 26, 1913.

The complaint was made by a manufacturing and stamping company desiring alternating current for electric welding purposes. The company declines to furnish it because the cost of the additional investment which would be required for such supply in a region being served with direct current, would be prohibitive, and the duplication of facilities and investment would not be justified, but a burden on the other customers not requiring this special service, there being a general preference among users of electricity for direct current when it can be obtained.

The Commission discusses both sides of the question at length, and decides that it would not be justified in ordering the service.

EDITORIAL NOTE.—All indented matter is direct quotation.

The essential paragraphs of the decisions are:

This case is not without its difficulties. As a general proposition it is true that a public service corporation should furnish its product to all applicants; but this, we take it, applies to all applicants who are similarly situated with reference to the facilities of the corporation as they exist at the time, and does not require the corporation to furnish expensive equipment to supply a single customer with a special service different from that of other customers similarly situated, and it appears to us that the proposition of complainant's counsel is too broadly stated. The Public Service Commission Law did not intend to change the practices of corporations except in so far as they might be found to discriminate unduly between customers, not to clothe the Commission with power to manage or prescribe the details of the corporations' business. The time and experience of the Commission are not adequate for that.

In the instant case the complainant, located in the direct current district, desires to promote the manufacture of a new article for which he holds a patent right, and for this purpose to install a single electric welding machine for the operation of which he requires alternating current. There are several methods by which the alternating current may be obtained: 1. To compel the company to run, at its own expense, a special cable to the complainant's premises; 2. For the complainant to install upon his premises the necessary apparatus; either a rotary converter, or a motor generator set, to transform the direct current into the alternating current he needs. Apart from the expense to the company involved in the first suggestion, it is found that there is at present no adequate provision for the installation of the necessary transformer upon the subway system; and in order to make this provision special construction would be necessary either at the expense of the city or of the company. Furthermore, the cable for this purpose would be for high tension current while the other cables in the system are low tension, and a dangerous condition would be created. . . . The Chief Engineer of this Commission condemns it as bad practice.

The second suggestion would cost complainant about \$450.00 for the rotary converter, and about \$800.00 for the motor generator set, which would supply power for two welding machines in case the demand for his product increased. In any event the instant increase of its output would be more than threefold. . . .

It is clear, therefore, that this is a special service. It is the first demand in a number of years for alternating current in the direct current district, and we may fairly conclude from this that there

is no general demand which would justify a change of equipment to meet it.

It is to be observed, finally, that this is not a flat refusal of the Company to supply the O. K. Manufacturing and Stamping Company with alternating current, but a demand that the complainant shall bear the cost of the special equipment necessary to supply it, the principle being, as stated by Mr. W. H. Gardiner, in his report on the London Sliding Scale (1906), "that each and every individually caused cost should in equity be individually met by the customer causing it."

This seems to us to be reasonable. At the same time, while, for the reasons given, we feel constrained to dismiss this complaint, we think there is a method by which the initial expense to the complainant may be reimbursed in the event of other demands for alternating current being made in this neighborhood. The cable to complainant's premises would be sufficient to take care of other customers, and as such were taken on, complainant could be reimbursed in proportion to the new demand. This suggestion is analagous to the Company's practice in the extension of gas mains under unusual circumstances.

We will not pass an order to this effect, because investigation has not gone far enough to determine what might be produced in the alternating district or what unremunerative capital expenditures might be entailed upon the Company to meet the situation. It is suggested as a ground upon which the complainant and the Company might meet and arrange to satisfy the needs of the complainant, which the Commission would like to see gratified.

NEVADA

3—Investment and Return.

Complaint against the WATER COMPANY OF TONOPAH, NEVADA, Alleging Inadequate Service, Excessive Rates, and Discrimination. Decision of the PUBLIC SERVICE COMMISSION OF NEVADA, Reducing the Rates. April 5, 1913.

The Commission states that after an investigation of the rates and service, and a valuation of the property of the company, no figures or items of which are given, the rates are found to be excessive, and prescribes a schedule of greatly reduced charges.

The decision says:

The schedule of rates prescribed by the order to be made herein is by no means based entirely upon the fact that it will yield to

the company a fair return upon the value of the property. We have considered it in every light and have taken into consideration all the elements which enter into the determination of what may be considered reasonable rates. We have considered the value of the property employed, according to our best intelligence and in line with the principles adopted by courts and commissions. We have credited to respondent a valuation that we believe is enough to cover the entire property used in the performance of the service now under review. We have allowed an ample percentage for depreciation, in view of the claims and contentions that Tonopah, being a mining camp, has not the same assurance of long life as a city or town that is located in the midst of a rich agricultural section. . . . We have carried into the expense account of the company an item of 5 per cent for the depreciation of the value of the actual tangible property which is susceptible of depreciation, which, by the customary rules of calculation, will reproduce the entire property upon any fair basis of calculation in about fifteen years.

COURT DECISIONS

IOWA

112—Franchises.

STATE ex rel. COUNTY ATTORNEY et al. v. DES MOINES CITY RAILWAY COMPANY. Suit to Declare the Street Railway Company's Franchise Expired, and to Secure its Ouster from the Streets. Decision of the Supreme Court of Iowa that the Franchise has Expired, and Granting the Company Two Years to Obtain a Franchise or Dispose of its Property. March 22, 1913. 140 N. W. 437.

This decision closes a long and hard fought battle in which the Company claimed its franchise was perpetual, and its opponents maintained that the franchise, granted in 1866, was for thirty years only. A full discussion of limited and perpetual franchises is given, over twenty pages of legal authorities being cited. The decision recommends tolerance for both sides of the controversy and concludes:

Our final conclusion is that the franchise has expired, or at least has been indeterminate since the year 1898, but that it would be wrong and inequitable to grant an order for immediate ouster. On the other hand, present conditions are intolerable, and such an order should be made as will approximate equity. . . . We think the street railway company should have a reasonable time to negotiate an extension or renewal of its franchise, or, if this cannot

be done, that it have the same length of time to dispose of its property. . .

We are constrained to grant the railway company the full period or two years from and after the filing of this opinion within which to make compliance herewith.

VERMONT

22—General Powers of Commission.

IN THE MATTER OF THE CONSTITUTIONALITY OF ACT GRANTING PUBLIC SERVICE COMMISSION JURISDICTION OF MUNICIPAL CHARTERS. In Response to the Request of the Governor, Opinion of the SUPREME COURT OF VERMONT, Declaring the Statute Unconstitutional. Jan 13, 1913. 86 Atlantic, 307.

The letter of the Governor, requiring the Court's determination of the question of law, says:

The executive is advised that the purpose of No. 115 of the Acts of 1910 was to afford a means whereby villages could be chartered, and city and village charters amended on petition to the Public Service Commission, and without resorting to the General Assembly. . .

The Court rules:

(1) It is a maxim of the common law that a delegated authority cannot, without permission, be delegated by the person to whom it is given if that authority involves a trust and requires the exercise of the judgment and discretion of such person in its execution.

(2) This maxim is applicable here, for the power exercised by the Legislature is the people's power, delegated to it by the people in the Constitution of the state, which expressly commits to the Legislature the power to "constitute towns, boroughs, cities and counties." This power is essentially a trust, and requires the exercise of judgment and discretion in its execution, and no authority is given to delegate it. . .

Testing the act by the general principle above stated, we think it goes too far when it leaves to the Commission to determine the plan and frame of government of the proposed village, what powers and functions it may exercise, and what shall be the limit of its expenditures and indebtedness, for these are questions of legislative judgment and discretion, and therefore their determination cannot be delegated. . .

NEW JERSEY**221.1—Stock and Bond Issues.**

The INTERSTATE TELEPHONE AND TELEGRAPH COMPANY. On Writ of Certiorari to Remove Order of the NEW JERSEY PUBLIC UTILITY COMMISSION Refusing Permission for Bond Issue. Decision of the SUPREME COURT OF NEW JERSEY, Dismissing the Writ. March 18, 1913. 86 Atlantic, 363.

The company made application to the Commission for authority for a bond issue, to be exchanged for an outstanding issue of almost twice the amount. The company concedes that it is unable to meet the interest on its outstanding bonds, but insists that it will be amply able to meet the interest on the new proposed issue of one-half its present bonds, the holders of these being now willing to accept the new issue in lieu of their present holdings. The company therefore contends:

that since the effect of its application is to reduce its bonded obligation by about 50 cents on the dollar, and that since the new issue of bonds is to go, not to the public at large directly, but to be accepted by the present bondholders as a substitute for their present holdings, no one can be harmed by the issue, while its direct effect will be to reorganize a company now concededly over-capitalized, and place it upon its feet as a factor in the industrial world. This, it insists, is not only a salutary arrangement for its bondholders and the public, but in no wise contravenes any legal principle or equitable rule. . . .

The Commission found:

it appears to the satisfaction of the board that there is no reasonable warrant for the expectation that the company from its earnings can pay the annual interest which the aforesaid issue of bonds would require to be paid. . . .

The Court holds:

The conspicuous fact in this case is that the Legislature, for reasons of public policy, has committed to a special board, organized for the purpose, the duty of investigating upon application, all proposed bond issues of public utility corporations, with a twofold object in view: first, to ascertain the legality of the issue; and, second, to ascertain its purpose. When the genesis of this

Legislation is considered, the fact becomes at once obvious that the inspiring motive of the Legislature was to create an administrative or supervisory board upon which should be imposed the duty of stamping its imprimatur, not only upon the legality of the financial proposition advanced, but upon the very merits of the subject-matter itself from the standpoint of a wise public policy, which was to have for its ultimate object the safeguarding of the public against ill-considered and reckless financial ventures, the obligations to which might prove disastrous to a confiding investing public. In effect, such was the view entertained of substantially similar legislation by the New York Court of Appeals in *People ex rel. Third Ave. R. Co. et al. v. Public Service Commission*, 203 N. Y., 299. . .

In the construction of such legislation . . . it in no wise limits the effect and extent of the Commission's inquiry to say that the bonds in any instance are not intended to, and as a fact do not, increase the corporate indebtedness, but rather reduce it by one-half. Upon that basis it is conceivable that the criterion of value may be artificial rather than real, and non constat that the refunding bonds to be issued to the holders of existing bonds, which bonds at the time of issue were concededly based upon a fictitious valuation, may under changed conditions, even at one-half the former valuation, still represent a value, in part at least, based upon sanguine, but nevertheless groundless, hopes and expectations of a market in future, and a business atmosphere now concededly nonexistent and therefore entirely problematical.

ILLINOIS

38—Taxation.

SANITARY DISTRICT OF CHICAGO v. GIFFORD, County Treasurer. Suit to Enjoin County Treasurer from Obtaining a Judgment to Secure Payment of Alleged Excessive Taxes. Decision of Supreme Court of Illinois Dismissing the Bill. Feb. 20, 1913. 100 N. E. 953.

The company contended that the proper method of arriving at the assessable value of its power plant is by capitalizing its net income on a basis of five per cent, and that in computing its investment the cost of the entire main drainage channel should be included as a part of the cost of the power plant. The decision does not sustain this, but finds that the assessed valuation is not shown to be so excessive as to warrant being disturbed by the court and maintains:

The Sanitary District was not created to produce income, but for the purpose of preserving health by carrying off the sewage of the

City of Chicago and vicinity. The large expenditure of money in the construction of the channel was primarily for this latter purpose. . .

This work was to be done and carried on with moneys raised by taxation upon property situated within the sanitary district; the owners of such property receiving their return in the improved living conditions and increased value of the property.

The works constructed in said township for developing the water power in connection with the main drainage channel were undertaken by the sanitary district as a financial investment, so as to create electrical power to be sold at a profit. . .

Such main drainage channel was not an auxiliary to the power plant; the latter was an incident to the said channel. . .

The water work and improvements in said township of Lockport cost, according to the allegations of the bill, approximately \$4,000,000. This water power improvement paid the sanitary district for the year 1911 a net income of \$184,781.33. That amount is 5 per cent upon a principal sum of \$3,695,626.60. The entire assessment by the board of review on appellant's property was \$2,726,517, so that if it be conceded that the assessment should be made on the basis of capitalizing the amount of income from the property of the sanitary district located in the town of Lockport, south of its controlling works, as a financial investment, such investment paid in 1911 a net income of 5 per cent on nearly a million dollars more than the board of review's assessment. The claim of appellant that the cost of the entire main drainage channel should be considered as a part of the cost of the power plant in said township cannot be sustained. . .

ARKANSAS

8—Municipal Regulation.

FORT SMITH LIGHT AND TRACTION COMPANY V. CITY OF FORT SMITH et al. Suit to Obtain a Temporary Injunction against the Enforcement of an Ordinance Fixing Gas Rates. Decision of United States District Court, Arkansas, Granting the Injunction. Dec. 31, 1912. 202 Fed. 581.

The Company set up three grounds for a temporary restraining order :

(1) that the rate fixed by the ordinance is less than that specified in the ordinance under which the company operates, which thereby impairs its contract with the city; (2) that the rate fixed is confiscatory; and (3) that the rate was fixed without making the examination required by law.

The first ground, impairment of contract, is dismissed, it being adjudged that the city could not by contract divest itself of the power to regulate rates conferred upon it by the Legislature, but that all contracts between the city and any utility company, are made subject to such power. On the second ground, the court finds the company's allegations of confiscation, supported by its affidavits and not controverted, are sufficient to warrant the issuance of a temporary restraining order. The third contention of the company is sustained, **and a long line of decisions quoted to show that a rate fixed arbitrarily, and not based on an adequate investigation of all the conditions governing the furnishing of the service is illegal.**

OREGON

81—Municipal Regulation.

CALIFORNIA-OREGON POWER CO. v. CITY OF GRANTS PASS et al. Suit for Preliminary Injunction against Enforcement of a City Ordinance Fixing Electric Rates. Decision of UNITED STATES DISTRICT COURT, Oregon, Granting the Injunction. March 3, 1913. 203 Fed. 173.

The city claimed the power from provisions of its charter, of fixing rates. The company on Jan. 15, 1913, filed a schedule of its rates with the Railroad Commission in pursuance of an order from it, as required by the Public Utilities Act, and the following day the city passed an ordinance summarily reducing the electric rates below those of the schedule. The Court decides that the Commission alone has jurisdiction of the company's rates, and grants the injunction of the ordinance as applied for.

The decision says :

It thus appears that the purpose of the Legislature in adopting the law, and the people in approving it, was to provide a uniform system throughout the state for the control and regulation of public

[service] matters, and fixing the rates to be charged by them, and to create a tribunal for that purpose. By that act the power to fix the rates to be charged by public service corporations, conferred on the different cities of the state by their charters, is transferred to the Railroad Commission, and such charter provisions are therefore amended or superseded, as far as they are in conflict or inconsistent with the powers so conferred. When a public utility has filed its schedule of rates, as required by the law, such schedule fixes the only rates which it may lawfully charge or collect, until they are changed in the manner provided by the law. If it does charge or receive any greater or less compensation, it is liable under the public utility law to a forfeiture for each offense, and its agent or officer offending to a fine.

NEBRASKA

84—Municipal Operation.

HENRY V. CITY OF LINCOLN. Suit by Employe to Recover Damages for Injury Sustained in City's Electric Pumping Station. City's Demurrer that Action Was Not Brought Within 30 Days as Required by Statute. Demurrer dismissed. Decision of the Supreme Court of Nebraska. March 14, 1913. 140 N. W. 664.

The Court distinguishes between the governmental functions and duties of a city, when it is entitled to certain privileges and immunities, as those prescribed by the statute relied upon, and its standing in a purely business or commercial enterprise, as when it voluntarily engages in any utility undertaking, when it must be treated as a private corporation.

The decision says:

It is then engaged in an ordinary business enterprise, and is bound by all the rules of law and procedure applicable to any other private corporation, or person, engaged in a like enterprise. It has no greater or higher privileges or immunities than are possessed by any other private corporation. It is subject to the same liabilities and entitled to the same defenses. No more and no less.

REFERENCES

RATES

61—Character of Service.

MOTOR DRIVE IN PULP AND PAPER MILLS, illustrated article, *Electrical Record*, 4 pages, May, 1913, p. 22.

A large amount of power is required in the various methods of paper making. This article gives the processes and descriptions of the equipment of plants, with full data on motor installations in three large paper mills.

61—Character of Service.

CENTRAL STATION ENERGY FOR ALL-ELECTRIC INTERLOCKING SERVICE, illustrated article, *Electrical Review*, 2 pages, May 10, 1913, p. 947.

States that railroad interlocking service is a very desirable class of business, having off-peak possibilities, that is seldom thought of in connection with central station power, and discusses some recent installations of this type.

61—Character of Service.

DOMESTIC APPLIANCES FOR LOAD BUILDING, by S. D. LEVINGS, Abstract of Paper read at Convention of Mississippi Electrical Association, Natchez, April 22. *Electrical Review*, 2¾ pages, May 10, 1913, p. 949.

This is a report of practical activities in load building addressed to the New Business Department of central stations, and tells of effective methods of publicity, salesroom-demonstrations, circular letters, etc., by which many devices, as laundry irons, milk warmers, toasters, etc., have been introduced into homes to the great improvement of the load factor. It is stated that the industrial line of heating apparatus, for example, glue pots, soldering irons, dental sterilizers, etc., are even more promising for development than domestic appliances, as a man is more easily shown the effect on his business, and the immediate profit of them.

INVESTMENT AND RETURN

222—Accounts.

A BRIEF HISTORY OF TELEPHONE ACCOUNTING, by CHARLES G. DUBOIS, Comptroller of American Telephone and Telegraph Company. A 67-page pamphlet.

This, after a brief history of telephone accounting from the beginning of the business about thirty-three years ago, gives the development of accounting methods with the growth and reorganization of the system into fewer and larger units, and a full and clear statement of the present accounting practice under the regulation of the Interstate Commerce Commission.

In appendices are given the forms for statement of business, and lists of the classified accounts used by the Bell Telephone Company at various periods since the beginning of the industry.

222—Accounts.

ACCOUNTING VERSUS STATISTICS, by MILAN V. AYRES, *Electric Railway Journal*, 21½ pages. May 3, 1913, p. 803.

The principal purpose of a standard classification is to make the reports of different companies available for comparative statistics, or, in other words, to insure that items of the same name shall always relate to exactly the same subject, and be composed of precisely the same elements.

The writer points out concrete instances where the standard classification makes it impossible justly to compare energy production costs, and other data of different electric railways, and proposes certain changes to correct this condition. It is recommended that the form of standard report prescribed by the commissions, should designate a complete set of original and derived statistics, and the exact meaning or method of derivation of each item should be authoritatively defined. The companies would, of course, report only their original accounts and statistics, the derived values being computed and tabulated by the commission.

Investment and Return.

SUMMARY OF REVENUES AND EXPENSES OF THE STEAM ROADS OF THE UNITED STATES FOR THE MONTH OF FEBRUARY, 1913. Bulletin No. 47. Prepared by the Bureau of Railway Economics, of Railway Companies of the United States, Washington, D. C.

This is a condensed statement of railroad returns, with tables and diagrams, showing total revenues and expenses in the United States, divided into "Eastern," "Southern" and "Western" Districts. Reports for eight months of the fiscal year compared with the corresponding months of the previous year are given, and a comparison of the returns for February, 1912, with those of February, 1913, showing an increase in total operating revenues per mile of 5.3 per cent, and an increase in operating expenses per mile of 6.4 per cent.

31—Valuation.

DESCRIPTION OF AN INVENTORY AND VALUATION OF A GAS AND ELECTRIC PLANT, by H. W. CROZIER. A Paper Presented Before the San Francisco Section of the American Institute of Electrical Engineers, March 28, 1913, and Discussion by Members. *Journal of Electricity, Power and Gas*, 5 pages. May 3, 1913, p. 406.

This describes in detail the methods followed in making a valuation of the gas and electric distribution systems of a company in a western city of about nine thousand inhabitants, for the state Public Utility Commission engaged in investigating a complaint against rates and service.

The orders to the appraisers called for

- 1st. The replacement value new.
- 2nd. The present value of property as it stood.
- 3rd. Maps, with all property, as far as possible entered thereon, a permanent record to be kept for future use.
- 4th. Every step so clearly presented, and every figure so definitely derived as to be capable of being proved in court.

5th. All figures of unit values, or of percentages for obtaining present value from replacement value, so calculated and carried out as to allow for simple alteration in the event of any item being successfully attacked.

Every element affecting depreciation was considered, costs of all the materials obtained, and the result showed the present value of the electric distribution system to be 90 per cent of the replacement value new.

The discussion brought out many interesting points in connection with such work.

36—Depreciation.

DEPRECIATION AND PUBLIC SERVICE REGULATION, by ROBERT H. WITTEN, Librarian, Statistician of New York Public Service Commission (1st D.), Engineering News, 6 pages, May 8, 1913, p. 942.

This is a clear and authoritative discussion of depreciation, with tables of computations, and comparisons of the different methods of handling depreciation funds. To define depreciation as concerned with the maintenance of the integrity of the investment in depreciable property, at a uniform annual cost, is to simplify the entire problem, which may then be stated clearly as the working out of the adjustment necessary to secure such uniform investment cost. A detailed consideration of this is given, with a solution of some of the difficulties and objections to depreciation practice named by other writers, and the general conclusions reached that there is no question that depreciation is an operating expense, and that it must be apportioned over the entire life of the depreciable property. This can only be done by apportioning a fair share of the burden to the operation expenses of each year since the initiation of the enterprise, and in cases where the past profits have been insufficient to pay a fair rate of return and at the same time set aside a proper depreciation reserve, adequate regulation may prescribe that for the future, the company be allowed to reimburse out of earnings, the amounts by which past earnings have failed to provide for operating expenses, comprising depreciation and a fair return on the investment. It is important to note that this shortage is properly treated as a deficit to be reimbursed, and not as additional outlay to be capitalized.

MUNICIPALITIES.

8—Municipalities.

PUBLIC UTILITY ADVICE FROM THE PUBLIC POINT OF VIEW, by DELOS F. WILCOX, Franchise Expert of the New York Public Service Commission (1st D.). An 8-page pamphlet, reprinted from *The American City*.

States that cities have need of expert service from men whose training is broad enough to enable them to co-ordinate all different factors in a public utility problem, and to give constructive advice from the public point of view. This would do away with much of the difficulties, misunderstandings, and conflicts between public service companies and cities, which generally arise from charter provisions injudiciously drafted, franchises improvidently granted, or regulatory ordinances passed without sufficient knowledge of their effects. The result of such unintelligent action by cities is their financial disability to own their utilities, and though municipal operation may not be desirable, yet the ability for such a course should be reserved.

GENERAL**77—Safety of Service.**

SAFETY MEASURES ADOPTED BY PUBLIC SERVICE COMMISSION, editorial and article, *Electrical World*, 1½ pages, May 10, 1913, p. 965 and p. 975.

This gives the twenty-eight rules of the order of the New York Public Service Commission (1st D.) adopted April 25, 1913, requiring all public service corporations within its jurisdiction using steam and electrical apparatus, to employ certain safety appliances and take certain precautionary measures, to protect their employes against injury by contact with live wires, etc.

The editorial comment says that the rules adopted are comparatively simple and straightforward and ought to be of very material service in preventing certain classes of accidents.

91—Promotion and Growth of the Business.

THE COMMERCIAL TREND OF THE PRODUCER-GAS POWER PLANT IN THE UNITED STATES, by R. H. FERNALD. Bulletin 55, issued by the Bureau of Mines, Washington, D. C. A 93-page pamphlet.

This gives thorough and disinterested information, obtained through unannounced visits of inspection by the writer and another engineer of the Bureau of Mines, and reports from manufacturers and owners of gas-producer plants, for the past eight years. Government investigations into the efficiency and economic value of these plants not only have shown a very low fuel consumption per horsepower-hour, but have demonstrated conclusively the possibility of utilizing commercially low grades of bituminous coal, lignite, and peat, in plants properly designed for the use of these fuels. The anthracite plant has been recognized as a commercial possibility for several years, although the cost of the fuel used has in general restricted these plants to comparatively small units. The fact that many owners have added to their instalations during the past three years, coupled with incidental reports, leads to the conclusion that the general attitude of the owners and operators is at the present time even more favorable to producer gas than formerly.

Graphic charts, tables, and a good index add to the convenience for use of this information. Two pages of bibliography are given, p. 91, covering the additional publications of the Bureau of Mines on cognate subjects, which may be obtained free by application to the Director, and a map of the United States showing the geographic distribution of producer-gas power plants accompanies this pamphlet.

98—Public Relations.

PUBLIC SERVICE PUBLICITY WORK, *Electric Railway Journal*, 2½ pages, May 3, 1913, p. 806.

This is an interesting account of the experience of the Public Service Corporation of New Jersey, under its policy of keeping the public fully informed in all matters of importance in its relations with its customers. The methods and results of this four-year experiment in publicity are most instructive, in showing what can be done in improving public relations in various ways.

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RATE RESEARCH



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CONTENTS	Page
RATE RESEARCH.....	115
RATES	115
COMMISSION DECISIONS.....	115
New York.....	115
RATE REGULATION, CHICAGO.....	118
REFERENCES.....	121
Rates.....	121
Investment and Return.....	124
Public Service Regulation.....	125
Municipalities.....	126
General.....	127

Rate Research

Vol. 3.

CHICAGO, MAY 21, 1913

No. 8

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATE RESEARCH.

The complete bound copy of Volume 2 of RATE RESEARCH, comprising the issues from October 2, 1912, to March 26, 1913, 420 pages, may now be obtained on application to the Secretary of the Committee. Price \$8.00 net, postpaid.

RATES

COMMISSION DECISIONS

NEW YORK

3—Investment and Return.

Complaint of the MAYOR OF BUFFALO against the BUFFALO GENERAL ELECTRIC COMPANY, Alleging Unjust and Unreasonable Rates. Decision of the NEW YORK PUBLIC SERVICE COMMISSION (2nd D.). Reducing the Rates, April 2, 1913.

A brief announcement of the percentage reductions, and the actual rates prescribed in this case, was made in 3 RATE RESEARCH 19, when the decision was first given out. The full text is now received, and contains a most important discussion of the principles of rate making, and of all the considerations which governed the rulings on valuation, and determined the reductions ordered.

The paragraphs covering these points are as follows:

311.2—REPRODUCTION COST NEW.

The cost of reproduction new theory, as it is applied at the present time, does not meet the approval of the Commission as controlling in this case. There is altogether too much uncertainty as to the result, and too much difference of opinion as to the bases upon which the result must be founded. . . .

It is not necessary to do more than simply call attention to the details of this table [giving estimated engineering and supervision

EDITORIAL NOTE.—All indented matter is direct quotation.

expense to construct the company's plant by three different engineers] as showing that engineers indulge in the widest latitude of opinion as to the cost of the work with which they should be the most familiar, namely, the engineering. If the Commission were required to pass upon this evidence, it would simply have to make a guess as to which engineer is right, and the Commission believes that the elimination of guessing in a case of this character is an end greatly to be desired and to be attained if possible. . . .

331.4—ORIGINAL BOOK COST.

The Commission therefore adopts the book cost as the main basis of its valuation, but allows land appreciation, and some other additional sums, on satisfactory evidence being produced by the Company that the full value of some portions of the property was not shown in the books.

4—RATE THEORY.

However difficult it may be, the task of determining the fair value of the property of the respondent in service, and the average amount of reduction which should be made in the rate, is simple and easy as compared with adjusting the rate itself. The subject of an equitable rate for an electric light and power company is one which is but very little understood, although it has received an enormous amount of consideration and discussion. The elements necessary to be taken into consideration are so diverse, the difficulties in the way of ascertaining the facts are so great, the theory of the rate so unsettled, and the difficulties of applying even an approximately correct theory in actual practice, are so complex and varied, that the installation of a rate which would be admitted by everyone to be perfect has never yet been accomplished.

41—COST OF SERVICE.

The public generally is prone to believe that the proper rate for electric energy delivered is a fixed price for a given unit, precisely the same as it would be for a bushel of wheat. Nothing could be further from the truth than this. It has come to be generally recognized, however, that there is a distinction between the lighting rate and the power rate, which may properly be recognized in practice. Why there is a difference is not ordinarily known, and although a minimum rate is perfectly just and equitable, the ordinary consumer is entirely unable to grasp the reason, and generally considers it an effort on the part of the company to get something out of him for which it has not delivered anything. . . .

It is probably best, in view of this situation of the public mind, for the Commission to avail itself of the opportunity to state some of the elementary principles upon which the building of a correct rate depends. The discussion will not be for the benefit or advantage of those who have studied the subject, but an attempt will be

made to set forth in plain and non-technical language those principles which are universally recognized, it is believed, by those who have made a competent study of the subject and which must be followed, so far as practicable, in producing a rate which reasonably approximates justice as between the different consumers.

No excuse is needed for this elementary treatment of the subject at this time. It must be regarded as an effort to bring before the mind of the public, as well as before corporations subject to the jurisdiction of the Commission which have not investigated the matter, a few principles which must govern electric rates.

An easy comprehension of any subject of this character is assisted by the use of graphic charts or diagrams. [Two load curves are here introduced.] . . .

514—DEMAND BASIS.

The company purchases electric energy from The Cataract Power and Conduit Company, and pays for it upon what is known as the peak of the load: that is to say, the greatest amount of current taken by it at any one time during twenty-four hours is taken as the amount of demand for current for the entire twenty-four hours. . . . Between 5 and 6 o'clock in the afternoon of the given day [in the month of December, 1912] the company was taking a little in excess of 10,000 kilowatts of energy. It therefore paid for this amount at the agreed price. It was entitled to receive that amount of energy during the entire twenty-four hours without any additional consideration. As a matter of fact, however, it sold only that energy to its customers which is shown in the shaded portion of the diagram [an average of about 5,230 kilowatts]. That portion of the diagram which is white or unshaded shows the amount of energy which it might have sold if it could have found a customer for it, without increasing in the slightest degree the price which it paid for energy.

Diagram No. 2 shows the same facts for a day in July. That day something less than 8,000 kilowatts was taken by the respondent at what is known as the peak of the load, and therefore it had to pay for nearly 8,000 kilowatts and would have been entitled to that amount of energy during the 24 hours. It was able to sell, however, only that amount of energy which is shown in the shaded portion of the diagram [an average of less than 4,000 kilowatts] and did not sell that portion which is unshaded.

111.2—DEMAND CHARGES.

The foregoing explanation relates to the sale of energy only. The same principle applies to the investment in the plant of the company. Referring to the first diagram, the company was obliged to have a plant adequate to distribute among its customers 10,000 kilowatts of energy, and yet during a greater part of the day a

portion of this capacity was not called into use nor required to perform the full duty for which it was capable. All of the return for the use of the plant to which the company was entitled for that day would, of course, have to be spread upon the energy sold and which is represented by the shaded portion of the diagram.

If that expense could have been distributed upon the entire area of the diagram, on the shaded and unshaded portions alike, the price would necessarily be considerably reduced to each consumer. These considerations bring into view the fact that the time during which energy is taken by the consumer is of the utmost importance.

If he takes it at what is known as the peak of the load, that is to say, at the time when the demand is the greatest, the results to the company are greatly different from what they are if he takes it at some other time. Account should be taken of this fact in the making of any rate schedule. The results of this important fact should be clearly stated, and some of them are as follows: they are stated in numbered paragraphs for ease of reference:

(The remainder of this important decision, as also the main rulings in the case of the Cataract Power and Conduit Company of Buffalo, decided on the same date, will be given in the next issue of *RATE RESEARCH*.)

224—Rate Regulation.

Report of RAY PALMER, City Electrician of Chicago, to the Gas, Oil and Electric Light Committee of the City Council, with reference to Regulation of the Rates of the Commonwealth Edison Company.

The Report is confined to recommendations as to maximum rates, although other rates have been studied as to their effect upon maximum rates, but other rates have practically been approved as they exist.

The service of the Company is commended, and the statement is made that every facility was given to the city in its investigation.

The essential portions of the Report may be summarized as follows:

3—INVESTMENT AND RETURN.

The City of Chicago has the right to regulate the Commonwealth Edison Company in so far as the establishing of its maximum rates for electric light and power is concerned. In order to report upon what are "fair maximum rates" for the different classes of service, which means efficient service to the citizens and a reasonable return to the company on its valuation it is necessary to first appraise the company's property, and second to use the appraisal valuation in connection with book values of the company, in determining the proper distribution of income and expenses.

31—VALUATION.

As it was impossible for an appraisal to be made by the city in this investigation, the H. M. Byllesby appraisal as of June 1, 1908 was used, and the proper additions and reductions to June 30, 1911, made which date is considered as representing a fair average investment for the year 1911.

The accounts of the Commonwealth Edison Company, its income and expense statements for the year 1912, recently available are also presented in the body of the report, with such adjustments as developed in the audit of the previous year. The figures for the year 1911 were used as the basis of this report, and a detailed audit made of the revenue and expenses.

78—SERVICE.

The "quality of service" factor has been given considerable study in this report, as it is believed that a monopolistic public utility company such as the Commonwealth Edison Company is at the present time, is in a position to give the highest grade of service to its customers at minimum rates, after paying reasonable returns on the investment, when properly managed within itself, and regulated by the municipality which it serves. If a public utility company is well managed, as this one has been, a maximum quality of service may mean an increased fixed charge, or operating costs, or both, and consequently less available for return on the investment, and for surplus.

354—SURPLUS.

Under normal conditions if the service given as a whole is of the highest grade and satisfactory, and the per cent return allowed on the investment is constant, the important varying factor in each year's business is the surplus. When the income increases in greater proportion than the proper yearly operating charges and expenses, including depreciation, the surplus will be greater for the year. There should be a fixed minimum surplus carried by the company to assure a fair return on the investment during the worst years of operation, but when the surplus is increased materially over this amount, the income should be reduced by this excess through the reduction of rates. This is a fair principal to apply, as the investor is protected to a reasonable extent on his investment, and the consumer is benefited by the reduction of rates applied to keep the surplus near a fixed amount, or proportional part of the company's actual investment. During the last five years the company has voluntarily reduced its primary rates from sixteen cents per kilowatt hour to ten cents, and its secondary rates from ten cents per kilowatt hour to five cents.

36—DEPRECIATION.

An allowance for depreciation was calculated on a three per cent sinking fund basis, from the revised figures of the original cost, estimated life, and salvage value of all depreciable property, which amounted to 3.63 per cent of the value new.

34—RATE OF RETURN.

A rate of return of seven per cent on the present value as determined for rate purposes is considered fair and reasonable.

RECOMMENDATIONS.**31—VALUATION.**

1. If future regulation is conducted on the present basis, we believe that in the interest of economy and fairness, the public authorities should be represented on any future appraisal board appointed for the purpose of determining the value of the Commonwealth Edison Company's property, for taxation, capitalization, rate regulation or sale.

38—PUBLIC RELATIONS.

2. To best serve the interest of the consumer, and to fairly treat all parties concerned, that a complaint and service bureau should be established to handle complaints of service and questions of charges. This bureau can be so organized as to be able to co-operate with the different departments interested in compiling the necessary data for future rate regulation and service supervision. This bureau together with the divisions of electrical inspection, and fire prevention, could study such problems as the overloading of lighting service with domestic power consuming appliances, and the resulting hazard.

5—RATE PRACTICE.

3. That a reduction in retail rates should be now made which can be applied in one or more of the following ways:

(a) The lighting rate to be ten cents per kilowatt-hour for first hours' daily use of maximum demand, five cents per kilowatt-hour for second, and three cents per kilowatt-hour for all excess, placing retail light and power on same schedule, and eliminating investment in extra maximum demand meters and watt meters.

(b) A reduction in the primary rate, both light and power, below a ten-cent maximum.

(c) A reduction in the secondary rate, both light and power, below a five-cent maximum.

(d) A reduction in the number of hours daily use of maximum demand before secondary rate is effective.

It is believed that recommendation (a) offers the greatest number of advantages.

52—DETERMINATION OF DEMAND.

4. That maximum demand meters should not be installed in future except in cases where they appear necessary for statistical purposes, but the maximum demand determined from present data and statistics, revised from time to time as conditions demand.

53—DISCOUNTS.

5. That special discounts now granted to the following classes be eliminated:

Drug stores, distributing advertising, company employes, customers having more than one premises, hall lighting, apartment buildings, and charitable and semi-charitable organizations.

5—RATE PRACTICE.

As previously discussed equalization of the retail lighting and power rates is logical and is advantageous to the consumer, as his lighting bills are reduced. While the company suffers a reduced revenue, it benefits by a reduction in investment and operating expense, the percentage of decrease in cost being greater in the case of the small consumer who uses both light and power.

REFERENCES

RATES

41—Cost of Service.

A CONTRAST IN CENTRAL STATION DEVELOPMENT, Electrical Review, ½ page, May 17, 1913, p. 999.

This gives an interesting comparison of costs taken from the records for the fiscal year 1912, of two companies located in the same state, and within forty miles of each other, both serving manufacturing communities of nearly the same total population, and producing their electrical energy from steam generating machinery, without the advantages of hydroelectric facilities in either case. The first company, A, is under progressive commercial management, while the second, B, is under an administration giving but little attention to seeking new business. The following are a few of the items reported in the table:

	A	B
Population served	18,612	15,539
Gross earnings	\$115,106	\$42,717
Sales of electric power.....	\$45,700	\$2,938
Station capacity in kilowatts.....	2,339	400
Number of customers.....	1,274	434
Total kilowatt-hours sold.....	2,401,669	424,547
Total costs (at station only).....	\$34,881	\$13,907
Kilowatt-hour cost at station only (in cents).....	1.1	2.8

41—Cost of Service.

COST OF MANUFACTURE IN A 2,300-KILOWATT CENTRAL STATION, Electrical Review, ½ page, May 17, 1913, p. 998.

This gives some interesting figures of costs taken from the operating records for the year ending June 30, 1912, of an electric light company serving an Eastern manufacturing city of about 40,000 people. Current is furnished by a steam plant of 2,000 kilowatts capacity, and a 300-kilowatt hydroelectric plant situated about two miles from the station. The general practice is for the smaller plant to operate the Sunday load, and to supply for two hours on other days during the peak load, from 250 to 300 kilowatts. The hydroelectric property was acquired during the year 1912.

The net cost of manufacture per kilowatt-hour was 1.31 cents, which is a reduction of 20.1 per cent over that of the year before. The cost of manufacture does not include distribution, office expense and management, taxes and miscellaneous expense. The maximum station load during the year was 1,880 kilowatts, giving a load-factor of 48 per cent on the day of the peak.

About 36 per cent of the kilowatt-hours delivered at the switchboard was sold for power. The total connected lighting load increased 29.6 per cent over the year before. The reduction in the unit cost of manufacture was caused principally by the increased output.

The tabulated data are as follows:

Cost of manufacture for the year ending June 30, 1912:

Fuel cost (per kilowatt-hours at 0.78 cents).....	\$28,826.64
Oil and waste.....	603.89
Water.....	918.69
Station wages (per kilowatt-hour at 0.37 cent).....	13,416.22
Station building repairs.....	820.08
Steam equipment repairs.....	2,536.07
Electrical equipment repairs.....	202.94
Station tools and appliances.....	690.07
Total.....	\$48,014.60

Kilowatt-hours delivered at the switchboard.....	4,786,900
Kilowatt-hours purchased, at about .5c per kilowatt-hour.....	1,107,550
Kilowatt-hours generated.....	3,679,350
Kilowatt-hours sold for power.....	1,720,362

411—Apportionment of Expense.

STANDARDIZATION OF METHOD FOR DETERMINING AND COMPARING POWER COSTS IN STEAM PLANTS, by H. G. STOTT and W. S. GORSUCH, Proceedings of the American Institute of Electrical Engineers, 33 pages, May, 1913, p. 1098.

This is a careful study and analysis of the elements of the cost of power in steam plants. It discusses the correct method of determining the cost of power by groups and individual items, of providing an amortization fund from life expectancy tables for replacing and renewing building and equipment, and of determining that portion of administration expenses chargeable to the cost of power. It is essential from many points of view, one of the most important being that of the consolidation of small plants into large interconnected systems, that a method should be established whereby the costs in different plants can be corrected to allow for variation in load conditions, cost and quality of fuel, labor, etc., and so enable comparisons to be made.

In this paper is shown how such an equitable basis may be worked out for comparing costs of power in different plants and under different conditions.

511—Flat Rates.

FLAT RATES FOR SMALL CUSTOMERS IN CEDAR RAPIDS, Electrical Review, May 17, 1913, p. 998.

The Cedar Rapids and Iowa City Railway and Light Company is successfully using the flat rate method of charging as an entering wedge in securing small lighting customers having a maximum demand varying between 100 and 300 watts. The company finds this method particularly desirable in the case of the

small offices, which, under the meter rates, seldom justify the investment necessary. Several customers of this class are now proving profitable, although consuming only two or three hundred kilowatt-hours of energy per month. In the case of residences, the flat rate has never been continued over three months, and meter customers are thus secured which would be impossible without the flat-rate method.

61—Character of Service.

ELECTRICITY IN COFFEE AND SPICE MILLS, illustrated article, *Electrical Review*, 5 pages, May 17, 1913, p. 993.

States that coffee-roasting and spice-grinding plants provide desirable loads for central-station power service, on account of the absolute necessity for cleanliness in such plants, and because of the continuity of the load. The hesitancy shown by plants in this industry to purchase power is rapidly disappearing, and progressive central stations are now encountering no difficulty in securing this class of business. Data on five such plants are given.

61—Character of Service.

MINING LOADS FOR CENTRAL STATIONS, by WILFRED SYKES and GRAHAM BRIGHT. *Proceedings of the American Institute of Electrical Engineers*, 14 pages, May, 1913, p. 999.

Points out the desirability of mining loads for central stations, discusses the various operations in mining work, and suggests methods of improving the load factor (by transferring some of the pumping and coal cutting to night hours, etc.), and power factor, and describes correct methods of fixing power rates, concluding that a proper power contract for mines should be based upon the following charges:

- (a) Fixed charge, depending upon the integrated peak load for a reasonable period, so that it will represent, approximately, the equipment required to carry consumer's load.
- (b) In addition to the above, a flat rate per kilowatt-hour, based on operating costs, taking into consideration the amount of power used, and allowing a graduated discount to give large consumers a lower rate.
- (c) If power factor is a consideration, a reasonable limit should be set, lower power factors being penalized by increasing the rate per kilowatt-hour, and a reduction in rate granted if high power factor is obtained.

615.1—Limited Hour Service.

INCIDENTAL FEATURES OF OFF-PEAK POWER CONTRACTS, editorial, *Electrical Review*, May 17, 1913, p. 990.

Points out many considerations to be borne in mind in developing off-peak service by offering it at special rates, among them the load factor of the proposed new business, the type of machinery, if the contract is with industrial concerns, arrangement of plant and way it is handled, the effect upon other users of shutting down the service at the specified hour, and the responsibility and limits of authority over the equipment of each party, as both the discontinuance and the resumption of service, are important in respect to the mutual relations of the central station and the consumer, in contracts of this character, as controversies involving large sums for damages, etc., may arise if accidents occur. Valuable sources of off-peak loads are electro-chemical processes, ice-making, vehicle-battery charging, heating and cooking.

INVESTMENT AND RETURN

112—Franchises.

FINAL REPORT ON SAN FRANCISCO, by BION J. ARNOLD, *Electric Railway Journal*, 10 pages, May 10, 1913, p. 853, and Editorial, p. 839. This is an abstract of the concluding portion of the report on transportation conditions in San Francisco, the first part of which was mentioned in 2 RATE RESEARCH 186. A resettlement franchise plan is recommended, by which the intangible values of the existing railway property will be decapitalized, and the principles considered desirable in city railway franchises are discussed. An analysis of the financial and operating records in San Francisco is given, and tables and curves showing the results to be obtained from the resettlement plans which are suggested.

The editorial points out that some of the difficulties, and the principles on which they should be adjusted, are common to the traction situation in other cities throughout the country, and the solution of the problems involved is of the widest interest and importance.

131—Protection from Confiscation.

PERNICIOUS "FULL CREW BILLS," Editorial, *Engineering and Contracting*, May 14, 1913, p. 537.

Calls attention to the recent passage in New York and New Jersey of laws requiring full crews on railroad trains, and states that the railway labor unions are responsible for these bills, as elective law making bodies rarely have courage enough to reject a measure strongly supported by labor unions.

Regulation is better at the hands of Commissions, which have never endorsed full crew bills. It is estimated that this law will cause a useless expenditure of \$2,500,000 annually in these two states, and it is suggested that this is just as inequitable as a rate making law which the Supreme Court has declared void as being confiscatory.

222—Accounts.

LIST OF UNIFORM SYSTEMS OF ACCOUNTS FORMULATED BY COMPANIES, ASSOCIATIONS, AND STATE COMMISSIONS. Compiled by the Library of the New York Public Service Commission (1st D.), Special Libraries, 3 pages, April, 1913, p. 56.

This gives references to the different classifications of electrical accounts which have been prescribed by four companies, and by eight commissions. Systems of accounts which have been issued for gas companies, railroads, telephones, transit and water companies, and one for a hydraulic power company are also listed.

31—Valuation

VALUATION OF PUBLIC SERVICE CORPORATIONS, by ROBERT H. WHITTEN, reviewed by WILLIAM J. NORTON. *Electrical Review*, 1 page, May 17, 1913, p. 1019.

This review of Dr. Whitten's book fully appreciates its high merits as the most thorough and convenient compilation yet made on this subject, but points out some proper limitations to its use, and possibilities of drawing misleading inferences if an indiscriminating adoption of the several decisions so well presented in the book, is made to serve as authoritative rulings on the difficult questions involved. Attention is called to the fact that the valuation of public utilities is a matter still in the making, and the hasty application of estimates and methods which fit one property or set of conditions, but are essentially unsuitable to another case, would result in inaccurate and unsatisfactory valuations.

31—Valuation.

THE RAILWAY VALUATION BOARD OF THE INTERSTATE COMMERCE COMMISSION, *Engineering News*, 2 pages, May 15, 1913, p. 1019.

This gives short biographical sketches with photographs of the five engineers appointed by the Interstate Commerce Commission, mentioned in 3 RATE RESEARCH, 94, who will have charge of the organization of the staff, and later the direction of the field and office work in the task ordered by the new federal Railroad Valuation Act, of the valuation of the properties of the railroads, steamship and express companies.

313—Prices.

COPPER PRODUCTION AND PRICE STATISTICS FOR THE PERIOD 1907-1912. By JOHN B. C. KERSHAW. *Electrical Review*, 2 1-3 pages, May 17, 1913, p. 1011.

Gives a full statement of copper production in the United States and other countries, in tables, and discussion of the whole copper situation and outlook, and the relationship between prices and stocks of copper.

PUBLIC SERVICE REGULATION**22—General Powers of Commissions.**

COMMISSIONS IN DANGER, Editorial, *The Gas Age*, May 15, 1913, p. 493.

Calls attention to recent legislation in New York State directly regulating railway fares in New York City, gas rates in Brooklyn, telephone rates in Greater New York and Syracuse, establishing a railway station in the Bronx, etc., all of which come properly under the jurisdiction of the state commissions, which issue such regulations after proper investigations of the service in question, and its cost. Any legislation which revives arbitrary rate reductions is dangerous and should be resisted. The six years of commission rule in New York State have left all corporations affected in better shape than they ever were. Why permit the Legislature to go back to the days of corporation baiting and expensive lobbying?

268—Public Service Laws.

IDAHO AND MAINE UTILITY LAWS, editorial and articles, *Electrical World*, 2 pages, May 17, 1913, p. 1018 and p. 1029.

The articles are brief abstracts of the public utility laws recently enacted in Maine and Idaho, summarizing their chief clauses covering rates, valuations, issues of stock and bonds, etc. The editorial makes some comparisons of the different provisions of the two laws, notably the inclusion of municipal plants under state regulation in Maine, also its more efficient control of the issue of securities, and of mergers, and in the matter of rate regulation this law specifies that it must rest on a complete valuation of the plant as a going concern, with due regard for fair rate of return on the investment. The Idaho law on the other hand fails to refer to municipally owned plants, and is not explicit on the other points mentioned, but does provide for a sliding scale of rates and dividends, and is the stronger of the two laws as regards the powers of the Commission to safeguard the public, and utility employees, from dangers of any description.

MUNICIPALITIES.**89—Municipal Statistics.**

FINANCIAL STATISTICS OF CITIES HAVING A POPULATION OF OVER 30,000, 1910. Issued by the BUREAU OF THE CENSUS OF THE DEPARTMENT OF COMMERCE AND LABOR, Washington, D. C. 1 vol., 308 pages.

In this report may be found on pages 130-131, a table of the revenue receipts of public service enterprises, including electric light and power, gas supply and water supply systems, operated by city governments, and on page 39, in a discussion and explanation of this table, occurs the following statement regarding the accounts kept by these utilities:

The statistics of municipally operated public service enterprises are defective, in consequence of the fact that the accounts of these enterprises are often not completely segregated, so that frequently an enterprise is neither credited with all the revenue resulting from its activity, nor debited with all the expense chargeable to it; thus in some cities an enterprise is not credited with interest earned on current deposits of its funds, nor charged with interest on its bonds. Again, in many cities the method of accounting is faulty, in that it does not give credit to enterprises for materials furnished or services rendered by them to the various departments, and to other public utility enterprises of the city government. Then, too, in cities crediting their enterprises with materials or services so furnished, there is no uniform method of determining the amounts to be credited. The only remedy for these defects is the more careful segregation of accounts affecting enterprises of this type, and the adoption by officials in charge of municipal accounting, of a uniform system of giving credit to enterprises, for utilities furnished by them to the departments, and to other public service enterprises of the city government.

81—Municipal Regulation.

THE CHICAGO TELEPHONE RATE INVESTIGATION, by PROFESSOR E. W. BEMIS, *The Voter*, 4 pages, May, 1913, p. 13.

This gives a summary of the rate reductions of the Chicago Telephone Company, which have been decided upon by the City Council, as a result of the investigation and report of Professor Bemis, an abstract of which was given in 2 RATE RESEARCH 85, and the Company's answers to which were given in 2 RATE RESEARCH 138 and 187. The report held that a reduction of \$700,000 per year for the next five years would be equitable, and as the company had devised for its employes a pension, sickness, accident and disability insurance plan, the Council has approved the apportionment of \$100,000 per year to this fund, and \$320,000 per year for additional wages to the operating force, within the city, on salaries of under \$200 per month, in order to secure better service, and to retain the well trained employes. The plan of the rate regulation is described, and a table given showing the reduction on each class of service. The Company has accepted the recommendations, and the proposed ordinance embodying them now only awaits the ratification of the city government.

8—Municipalities.

PARTIALITY TOWARD MUNICIPAL OPERATION, editorial, *Journal of Electricity, Power and Gas*, May 10, 1913, p. 439.

This deprecates the exacting of tolls and rentals for the development of water power rights, as in the new series of permits issued by the Department of the Interior, and particularly disapproves of the discrimination that is practiced by granting such rights free to municipalities desiring to engage in power enterprises. The great need of the country, especially in the West, is for the development of the available water powers, often in excess of the immediate demands of a city, and on large scales to promote economy and efficiency, and the vested interests of the millions of private capital already in these enterprises require that in justice and equity there should be fair treatment of existing utilities, and that before entering territory already being served by them, a municipal undertaking should offer to take over the existing lines at a reasonable figure, so that costly duplication of equipment and distribution systems should not occur.

GENERAL**75—Comparative Company Data.**

CENTRAL STATION FACTS AND FACTORS IN THE STATE OF IOWA, a report presented at the Annual Convention of the Iowa Electrical Association, by **AUSTIN BURT**. *Electrical World*, 1 page, May 17, 1913, p. 1042.

This gives in a table data from thirty-eight central stations in Iowa for the present year, and in corresponding columns the same information for the years since 1909, when these statistics were first compiled, allowing comparison to be made showing the total growth of the electrical business in Iowa for these years.

735—Technical Data.

THE RIVALRY BETWEEN GAS AND ELECTRIC LIGHT, *The Gas Age*, $\frac{3}{4}$ page, May 15, 1913, p. 509.

This is an abstract of a translation from a German review of an investigation of the comparative merits of electricity and gas for street lighting. The factors of glare, uniformity and steadiness, duration of the parts to be renewed as carbons for the electric arcs and mantles for the gas lights, convenience for cutting down the amount of lighting after 11 p. m., and original and maintenance cost are all considered, with figures of such costs of both electric and gas street lights in Berlin, Germany, and the statement is made in conclusion that an increased cost of 25 per cent for the electric lamps over the gas lamps is found.

91—Promotion and Growth of the Business.

TRUNK LINE ELECTRIFICATION, by **CHARLES P. KAHLER**. *Proceedings of the American Institute of Electrical Engineers*, 38 pages, May, 1913, p. 1058.

This paper outlines the steam railroad conditions in the West, and points out the economic benefits, including reduced operating cost, to be obtained by sub-

stituting electrical operation for steam. In one railroad, taken as an example, investigations show that about half as many electric locomotives would be required to handle a given traffic as are necessary of steam locomotives, the characteristic of the electric locomotive to operate overload for short periods, enabling it to haul heavier freight trains over the undulating grades on most steam railroads than is possible with a steam locomotive. A very complete method of analyzing the comparative operating expenses and fixed charges of trunk line railroads by steam and electric operation is given, with tables and curves of cost and other data.

91—Promotion and Growth of the Business.

2400-VOLT RAILWAY ELECTRIFICATION, by H. M. HOBART, Proceedings of the American Institute of Electrical Engineers, 40 pages, May, 1913, p. 1016.

States that as a consequence of the enormous growth of the electricity supply business during recent years, and the resulting decreased cost, and increased efficiency, brought about by progress in the art, and scientific administration, electricity can in many instances be profitably sold to railroads at a price, delivered to the substations, of less than one cent per kilowatt hour. The writer recommends purchased power for railroads rather than the owning of generating plants. Electricity as the motive power for sections of railway on which a dense service is maintained, has long since been demonstrated to be desirable from many standpoints, but now it can often be conclusively demonstrated that electric operation is economically superior to steam locomotive operation, even for divisions where the traffic consists of an irregular and sparse service of freight and express passenger trains.

This paper works out comparisons of, and shows the leading facts to be considered in estimating, the costs of steam and electric operation of railroads.

91—Promotion and Growth of the Business.

THE RESULTS OF A PROGRESSIVE CENTRAL STATION COMMERCIAL POLICY, Electrical World, $\frac{1}{2}$ page, May 17, 1913, p. 1041.

A table of sales of current, total revenues, numbers of customers, etc., and two load curves, are here given to show the result in increased business in two years, of the Worcester, Mass., Electric Light Company, from a campaign for extending its service, the means made use of for this end being, vigorous solicitation, increased attention to displays of new apparatus, extended newspaper advertising, the reduction of rates, and a general effort to get into closer friendly relations with the public. The table shows that inside of two years the total energy marketed by the company was more than doubled, its power output was nearly quadrupled, and the connected motor load more than quadrupled.

98—Employees.

THE WASHINGTON WORKMEN'S COMPENSATION ACT AND THE RESULTS OF ITS FIRST YEAR OF ADMINISTRATION, by L. R. W. ALLISON, Engineering News, $2\frac{1}{2}$ pages, May 15, 1913, p. 1005.

This gives an abstract of the provisions of the Workmen's Compensation Act which was passed by the legislature of the State of Washington, and has been effective since October 1, 1911, and a summary of the results of its operation to date. The law has been found to be economic and satisfactory in practice, the chief advantages are reported as (1) increased safety in industrial operations, (2) sure and determinate relief for injured workmen and their families or dependants, and (3) the elimination of extended litigation with the consequent saving of retaining fees, court expenses, and the like.

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RATE RESEARCH



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CONTENTS	Page
COMMISSION DECISIONS.....	131
New York.....	131
REFERENCES.....	140
Rates.....	140
Investment and Return.....	142
Public Service Regulation.....	143
General.....	144

Rate Research

Vol. 3.

CHICAGO, MAY 28, 1913

No. 9

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COMMISSION DECISIONS

NEW YORK

3—Investment and Return.

THE BUFFALO GENERAL ELECTRIC CO., RATE CASE.

The following paragraphs conclude the rulings on important points in this decision of the NEW YORK PUBLIC SERVICE COMMISSION (2d D.) begun in 3 Rate Research 115.

621—DEMAND FACTOR.

1. The cost of current to the company is fixed, not by the amount used, but by the greatest amount taken at any period during twenty-four hours, or by the peak of the load.
2. The capacity of the plant is determined by the greatest amount of energy required by the consumers at any point of time in the year, and hence the cost of the plant or investment required in the business is determined by the peak of the load during the year.
3. Every consumer demanding service at the peak of the load during a given twenty-four hours adds to the cost of current for that day.

615.1—LIMITED HOUR SERVICE.

4. A consumer who takes current off the peak of the load adds nothing to the cost of the current to the company.
5. A consumer who takes no current at the yearly peak of the load adds nothing to the capacity or cost of the plant.

54—MINIMUM CHARGE.

6. The consumer who adds to the cost of the plant by taking current at the yearly peak should equitably be required to pay a return of some amount upon the investment which has been made necessary solely by reason of his demand for service. This justifies a minimum charge of some amount.

411—APPORTIONMENT OF EXPENSE.

7. If all customers were on the yearly peak, equity would require that since all must in some manner pay a given return to the company, each should pay that proportion of the whole which his demand bears to the total demand.

8. But the customers are not all on the daily or current peak, nor the yearly or plant peak. Hence a method must be devised which will fairly distribute the plant cost of yearly peak between those who are on the peak, and those who are not.

411.1—CUSTOMERS' CHARGES.

9. Every customer should pay all expenses which are incurred solely because he is a customer.

10. As to the daily or current peak, it would not be equitable to require only those who are on that peak to pay all the cost, although it is their demand which determines the amount to be paid by the company for current, since that would result in freeing those who take current off the peak from paying anything. Hence there must be some method devised of making an equitable distribution of cost of current between the various consumers.

623—LOAD FACTOR.

11. The burden falls primarily on those who are on the peak on both cases because they are the ones who primarily create all the expense. Hence in order to relieve them, the first thing requiring attention is to create as large a demand off the peak as possible, thus creating a greater number to assist in bearing the necessary expense.

612—POWER.

{ 12. The peak, both daily and yearly, is created chiefly by the lighting load. The power load is largely off peak. Hence it is for the interest of those using current for light to encourage the use of off the peak power as much as possible.

6—RATE DIFFERENTIALS.

13. In order to encourage this use of off the peak power a price must be fixed which will induce customers to take it. The price should be such as to pay a just sum for the current used, and take off if possible some portion of the current cost from the peak load user. It should also be such as to contribute to some extent to the yearly investment cost.

45—VALUE OF SERVICE THEORY.

14. In fixing power costs the company is compelled to take into consideration competitive costs, or it can not get the business.

15. It must also fix the price at such a point as will induce, if possible, new uses for power.

16. It must also encourage a more extensive use by off the peak consumers.

61—CHARACTER OF SERVICE.

17. Generally speaking, all lighting is on the peak, hence the basis to work from is the lighting rate.

18. Consumers of current for light should be induced to use current for power, out of lighting hours. This will benefit the consumer and company, if the rate is equitably adjusted. This can chiefly be done in residences. The field in stores, saloons, restaurants, churches, offices, and the like does not appear promising for much expansion.

514.3—WRIGHT DEMAND RATE.

19. The primary or lighting rate should be as low as possible in order to attract new customers in a town in which the business is not thoroughly developed.

20. The primary rate should cover only the peak load hours, and should drop as rapidly as may be, to induce longer hours of consumption, and thus give a greater sum to spread the investment charge upon.

6—RATE DIFFERENTIALS.

Consumers can readily be divided into classes, in accordance with the time of service with reference to the peak of the load. Three diagrams have been prepared showing typical consumption. Diagram No. 3 is a theoretical showing of the current consumed in an ordinary residence. There is some consumption early in the morning between the hours of 6 and 8, and the greater amount of consumption is at night from 4 o'clock until 11 o'clock, and varies at different times of the period. The shaded portion represents the current consumed and the white portion the current unconsumed during the twenty-four hours. The diagram itself is upon the same theory, showing in the base figures the hours of the day and in the vertical figures the kilowatts taken. It is plain on looking at the diagram in connection with the foregoing statement of principles that anything which will induce the use of current at noon and midnight will be of advantage to the company, and by a proper arrangement of the rates it need not add measurably to the expense to the consumer. Thus, in a residence, the lighting in the evening is something which will take place every day. It ought to be possible to extend the use of current in that residence for power purposes during daylight hours at a small cost to the consumer.

612.1—SMALL POWER.

Diagram No. 4 is prepared upon the same plan, and is a typical representation of the current taken by a machine shop for small power load. The demand for current is assumed to commence at 7 o'clock in the morning, continue substantially until noon, shut down very largely during the noon hour, and then the current is taken again until 6 o'clock at night. By comparing the peak of this diagram with the peak of Diagram No. 1, it will be seen that

the load is very largely off from the peak of No. 1, and this is an explanation why power can be afforded more cheaply than light, a greater portion of which is upon the peak.

Comparing Diagram No. 4 with Diagram No. 2, which represents a summer month when the peak is later in the day, it will be seen that none of the power is upon the peak.

616 1—STREET LIGHTING.

Diagram No. 5 is a typical representation of the consumption of current by street lights. Street lights, as shown by the diagram, extend from midnight until a little after 6 o'clock in the morning, begin again at 5 o'clock in the afternoon and continue until midnight; so a great portion of current is off peak during the summer months, while a much greater portion is on peak during the winter months.

41—COST OF SERVICE.

The principle to be deduced from all of this is, that the consumer shall pay a greater price for the current taken during the peak load, than that taken off the peak load, and the difficulty in the case is to ascertain what portion of the current a given consumer takes is on peak load and what is off. No instrument has yet been devised which will record this fact, and accordingly we must trust to observation for the reaching of the proper conclusion. Lighting, as is well known, is very largely on peak. The existence of the lighting is what creates the peak. Power is on the peak very much less than lighting. The power consumer takes a very much larger percentage of energy off peak than the lighting consumer does.

52—DETERMINATION OF DEMAND.

Another difficulty is in ascertaining the maximum demand of the consumer: that is, the greatest amount of current which he takes at any given moment during the twenty-four hours. Meters have been constructed which will determine this fact, but they are too expensive for ordinary use. They are practical, however, in the case of very large consumption for power. Accordingly, it is essential to ascertain in some practical, although it may be to some extent an arbitrary method, the general average amount of demand of the consumer during the peak load hours. Experience has settled this to some extent. It must be stated, however, that further investigation is very greatly required upon this point. When once the consumer has paid the proper sum for the current which he has consumed during the peak of the load, the company can well afford to make a very considerable reduction in price in order to induce him to extend the consumption during the hours off from peak, and the reduction in price will be of great benefit especially in residences. Electric energy ought to be applied to very many power uses in every residence, where it is now used in but few.

615—FEATURE RATES.

Motors for driving sewing machines and washing machines, electric fans, vacuum cleaners, electric flatirons, and cooking utensils, should be common, where they are now rare; and if the price could be made right their introduction would inevitably follow. For this reason a sliding scale in residences is imperative. The consumer should pay the equitable price for what he takes on peak, and therefore it will be for his advantage and for the advantage of the company to take current which costs the company nothing, that is, out of the unshaded portion of the diagram, at a very low rate.

6—RATE DIFFERENTIALS.

All of these considerations enforce the necessity of a differential scale of some sort. Different devices or scales have been adopted in different places, all of which were designed to accomplish the results herein indicated. It is not intended at this time to go into a discussion of the technical matters of consumer charges, demand charge, and others well known to electrical experts, nor to discuss or analyze the various schemes which have been presented to effect these results.

523.2—AREA OF PREMISES BASIS.

Attention may well be called, however, to the fact that the Hydro-Electric Commission of the Province of Ontario has established a scheme by which the consumer is required to pay a certain sum whether he takes current or not, upon the basis of the area lighted; that is, the size of the rooms in which the lighting apparatus is installed; and then he is charged a very much less than usual rate for current alone that is used. The consumer very speedily discovers that upon this basis of charge he can consume much more current without extra charge than he was accustomed to consume under what may be termed the flat rate charge of so much per kilowatt-hour.

61—CHARACTER OF SERVICE.

In preparing for an adjustment of the rates in this case, the parties were called upon for their suggestions. The respondent submitted a statement, carefully prepared by its principal expert, which has been studied with care. In that statement it is proposed to divide the consumers into four classes: residence lighting, general lighting, general power, and large light and power. In addition to these there would be also street lighting. This general classification is a very good one, and is accordingly approved. It is a rough but reasonable treatment of the different conditions under which the energy is taken and the different demands made by the consumer upon the company. It has accordingly been adopted as the basis of the rate to be fixed. . . .

There is a class of service the receipts from which in the year 1911 amount to approximately \$79,000, which has not thus far been considered. It is what is known sometimes as special and feature service. This class takes into consideration special contracts and special situations which can not well be considered under the general heads hereinbefore laid down. A very considerable part of this service involves something out of the usual and hence it is impossible to lay down in advance precise and formal rules determining the rate to be charged. To a certain extent there must be some flexibility in this matter, provided such flexibility does not lead to unreasonable discrimination. The company should be required to cover these matters in its schedule of rates so far as possible, such schedule to be approved by the Commission. There is a question as to where some service should apply, whether in this class or in another. Some of the classes of service referred to are (a) breakdown service, (b) elevator service, (c) sign service, (d) special occasions, (e) matters not otherwise covered. . . .

3—INVESTMENT AND RETURN.

The return which the public should pay to a corporation for service is based upon one set of considerations. How the return so paid should be divided among the shareholders is another matter and one in which the paying public has no direct interest. The corporation is entitled to a fair return from the public upon the efficient sacrifice it has made in performing the service, upon the fair value of the investment made for that purpose, and to no more.

355—ISSUES OF STOCKS AND BONDS.

The certificates of stock issued to the shareholder do not in the least determine the fair value of the investment. They are not a measure of the efficient sacrifice made. They are mere title deeds, as it were, to the investment. There can not be a just return upon both the investment and the piece of paper which shows title to the investment.

The function of the stock is not to determine how much the public shall pay, but how what the public has paid shall be divided among the shareholders. The value of the stock is not determined by the figures printed upon the certificates, but by the amount it receives upon a division of what the public pays. The value is rarely par. If the stock receives a large sum as dividends, the value rises; if a small sum, the value falls.

If the amount the public should pay for the service were to be determined by the amount of stock issued, the result would be that the body having the power to determine the amount of stock would fix the return, and all consideration of the fair value of the investment used in the public service would go for naught. A

stock dividend of, say, 100 per cent doubles the amount of the stock, but has no proper effect upon the rate the public pays. Such dividend neither increases nor diminishes the fair value of the property used in serving the public. It merely rearranges as between the shareholders the form and number of the pieces of paper showing their rights between themselves to the net earnings and to the property itself if ever divided amongst them. . . .

There has grown up, for some reason, a very peculiar and illogical notion with reference to the protection of so-called innocent investors in the stock of a public service corporation which deserves a little attention at this point.

331—AMOUNT OF INVESTMENT.

The underlying conception upon which this notion is based is that the return the public is to pay is based upon the amount of stock, and not upon the amount of the investment: that it should be reckoned upon the figures printed upon the title deed to the property, rather than upon the value of the property itself. There is no law justifying any such view, and certainly no equity or justice.

Once it is clearly apprehended that a person buying stock in such a corporation is buying only a right to a certain proportion of the dividends, the confusion disappears, and the whole matter is put upon a just basis. The amount of the dividends depends wholly upon the business success of the corporation, and no one pretends that there is any principle justifying an exaction from the public of more than a fair return upon the value of the property used in the public service.

If a purchaser is foolish enough to pay more for the stock of such corporation than would be justified by the reasonable amount of dividends, there is no principle of equity which requires that the loss should be borne by the public, but every principle of equity and law requires that it should be borne by the person making the investment. No one at the present time, in any careful consideration of the subject, attempts to maintain that the public should pay a return upon the stock. Everyone concedes that the return should be upon the investment; and yet from time to time we are met with a plea to protect the stock which is the title deed, and disregard the investment which is the matter of substance. . . .

314.22—FRANCHISES.

It is true that a great deal has been said about franchise value in rate cases. It is unnecessary at this time to review what has been said. There is one paramount fundamental consideration which, in the judgment of the Commission, is conclusive upon the whole matter, and the facts upon which it is based are as follows: It does not appear that any sum whatever was ever paid by the

respondent or by its predecessor companies for this franchise. It was a gift by the City of Buffalo to the predecessor companies, and consists wholly in permission to use the streets of the city for the placing of poles, stringing of wires, and placing of conduits. . . .

The whole truth lies in one sentence: If the franchise, which was a gift from the public to the company, should be made the basis of a money return, the practical result would be that the public would have to pay money to the company because it had given the company the right to occupy the public streets with its plant. This is the whole of the matter, and when thus stated, there is but little more to be said. . . .

The reductions ordered are:

Class	Reduction
Residence lighting	33.0 per cent.
General lighting	28.0 " "
General power	32.7 " "
Large light and power	32.2 " "
Street lighting	11.0 " "
Grand total	26.7 " "

35—TOTAL REVENUE, EXPENSE, INCOME.

The calculations for the foregoing table were made from data showing the residence business for 1911 classified between flats and houses, and showing the number of customers, the kilowatt-hour consumption, and the revenue for each month; also the average size of installation for flats and houses. That for general lighting was from data furnished by the company, showing business for specified months classified according to hours use of connected load by hours, and showing the kilowatt-hour consumption and the revenue for each class. The same is true of the power business. The calculations were made upon data furnished by the company, and which data were used by the expert for the company in submitting his calculations for a rate to the Commission. The rate for street lighting was reached by computing the actual cost to the company with a proper return upon the amount of property used in the business and upon the expense incurred for operation.

These rates as fixed by the Commission comply as nearly as it is possible to make them with the requirements hereinbefore discussed. The proper data as to connected load necessary for putting in force this rate should be assembled by the company at once. It is understood that a large part of it has already been gathered. All question arising in the course of establishing the

rate and practice should be submitted by the company to the Commission for final determination when the questions are once ascertained.

54—MINIMUM CHARGE MINIMUM RATE.

The company is at liberty under this schedule to establish a minimum rate. It would be better if the Commission felt at liberty so to do, but there is sufficient uncertainty in the law as to its power in this respect to make it advisable to remit the matter to the determination of the company, subject to the following observations:

The minimum rate should be a yearly minimum and not a monthly minimum. The proper proportion should be charged monthly, however, and an adjustment made at the end of the year. It is a serious question whether the minimum rate should not depend upon the size of the installation. The minimum rate for residences should not exceed \$9 per year for the smallest class of customers. The question as to large installations is held open for further consideration.

513 9—STEP RATE EXISTING RATE.

The existing rate schedules of the company, as hereinbefore indicated, are imperfect and discriminatory by reason of the fact that they are what is known as the step rate. Under such a rate it always follows, that with every break in the price a customer near the maximum limit of his class pays more than one who is near the minimum limit of the next class. This always creates dissatisfaction and trouble and should always be avoided. . . .

A considerable misapprehension as to the force and effect of the decision in this case may arise unless some general observations are made.

62—FACTORS AFFECTING RATES

1. The maximum rate fixed in this case can not properly be used as a criterion for a proper maximum rate in any other place or in any other controversy. It is clear that a maximum rate depends upon the character of the load as well as the quantity: that is to say, the load factor is an element; and necessarily, the time of consumption. A business which is all upon the peak demands a higher maximum than a business which is spread out over long hours. A rate suitable for one place may be entirely unsuited to another unless the conditions of the load are practically the same.

34—RATE OF RETURN

2. The Commission has not attempted to fix any definite percentage of return upon the capital invested. It has used for illustrations and for some calculations the rate of 6 per cent. The truth is, no one can tell what return a given rate will produce either in the aggregate or as a percentage upon some other sum. The returns can only be ascertained by experience. All that can be determined in such a case as this is that the rate is not confiscatory: that is to say, it will return at least 6 per cent upon the ascertained fair value of the property used in the public service.

There is no such thing as keeping the return, however, at 6 per cent. The conditions will vary from year to year. Operating expenses will vary; gross earnings will vary; and in a town which is not thoroughly developed, as Buffalo is not, a rate should be so fixed as to increase the return to the company by increasing its revenues above the limit fixed without a proportional increase in expenses. This, it is believed, is precisely what will happen in the case of the Buffalo General Electric Company. There has been a very considerable growth in its business during the last two or three years. There should be a very much larger growth during the next two or three years, and this will introduce into the problem new complications.

3—INVESTMENT AND RETURN.

3. The complications just referred to are but the business the company ought to increase, and this will demand the investment of fresh capital. The company must be left in a situation that will enable it to finance its growth properly and upon reasonable terms. It is now serving the public and must continue to serve the public. The problem concerning electric energy generated at Niagara Falls is very great. It involves elements which are now insoluble. The amount of energy available and to be available for the next ten years from this source is unknown. As has been indicated in the case, there is a grave possibility that steam power will have to be resorted to for the supply of electric current in the near future in the city of Buffalo. If such is the case, that fact may demand an entire revision of the rates herein fixed, not only in case a steam plant is erected, but also in case its erection is contemplated, for the reason that a very considerable further investigation may be needed to determine whether the rates fixed would be remunerative with a steam plant producing part of the energy consumed. The calculations in this case, elaborate as they have been, relate to hydro-electric energy as against steam generated energy, and no calculations have been made which warrant any conclusions as to the cost of energy partly derived from water generation and partly from steam generation.

All of the foregoing considerations have been kept in mind in the determination of this case. The subject under consideration has been so vast in extent; the factors to be considered are so complex, involved, and in many respects contradictory and uncertain, that the Commission can not feel sure that errors have not crept into its calculations and that its conclusions may not be to some extent erroneous in matters of detail.

REFERENCES

RATES

4—Rate Theory.

THE THEORETICAL BASIS OF THE MULTIPLE-RATE SYSTEM, by HUGO

E. EISENMENGER, *Electrical World*, 6½ pages, and editorial, ¾ page. May 24, 1913, p. 1070 and 1085.

The article gives, with numerous curves and geometric figures, the methods of calculating mathematically the correct resultant rates for different classes of service, from a given demand and energy charge, modified by the proper effect of the average load factor, length of hours use, quantity of energy consumption, etc., for each class, with graphic representation of the block reductions, minimum charge and customer charge.

The multiple rate is recommended as equitable and scientific. By the term "multiple rate" shall be understood a rate with the following features: The kilowatt-hour consumption is divided into a number of "blocks" progressing either with the number of kilowatt-hours used or with the load factors (for example, blocks of 100 kilowatt-hours each, or 5 per cent load-factor each) or by combinations of the two methods. The energy consumption for each block is charged at a certain rate per kilowatt-hour, which decreases by steps from one block to the next. The "primary" rate is charged for the first block, the "secondary" for the second, the "territory" for the third, etc. The characteristic of the multiple-rate system is that each one of these rates applies only to its own block, and has no influence on what is charged for the other blocks, in counter-distinction to the step method, where every reduction in the kilowatt-hour charge applies to all kilowatt-hours, beginning with the first one.

The editorial notes the progress in rate making since the beginning of the electrical industry, from a flat rate per lamp installed, to straight meter rates or flat charge per kilowatt-hour consumed, and so to the demand or two-charge rate, and calls attention to the great importance of rate making, as only when the rates are fair to all parties, customers and corporations alike, can all parties share in the benefits of the industry. A rate may be admitted to be substantially fair and yet be open to other objections. It may be unnecessarily complicated, it may be crude and unscientific, or it may be open to ambiguity and dispute. An ideal rate would be fair to all parties, easy to understand and to reckon, rationally and logically constructed, and reasonably free from misunderstanding. The present study is an example of clear and exact rate methods.

4—Rate Theory.

PUBLIC SERVICE RATES, by WILLIAM J. NORTON, address delivered before the Ninth Annual Convention of the Southwestern Electrical and Gas Association, Galveston, Texas, May 21-24, 1913.

This gives a survey of the theory and practice of rate making by public utility companies, especially electric companies; of the effects of commissions' actions and court decisions on the study and working out of the problems of rates; a forecast of the regulation to be anticipated from the present and prospective state commissions; and practical recommendations for improvements in rate practice, from a wide experience with, and comparison of, the usages of progressive corporations. Some important and far reaching results, in the development of the electricity business, of intelligently calculated rates, and of standard public schedules, are pointed out, including a better knowledge by the company of the profits of different classes of its business, and the ability to make instructive comparisons with operations of other companies; the increased confidence of every customer who feels that "bargain rates" are no longer being resorted to, but that his own rate is the same as that of all other customers whose use and service are similar; and definite advantages from a commercial standpoint to the salesman who can offer a rate easily explained as to its basis, and simple in its form. The main rate differentials, and the forms of schedules which have been approved by the best authorities are clearly stated, and this summary of the whole electric rate situation concludes with four specific recommendations:

1. A careful study of the rate problem of each company, the detail thereof being assigned to one of the younger men or officials of the company.
2. The voluntary establishment of a uniform system of rate schedules open to the public.

3. Whenever, in the judgment of the company's executives or owners, the business for the preceding year or years shows an allowable margin in the net profit of the plant, rate reductions—no matter how small—should be voluntarily offered, if only to certain classes.

4. Whenever rate reductions are put into effect, the opportunity should be seized to adjust and correct the existing inequalities in the rate schedules.

41—Cost of Service.

POWER ECONOMIES IN A PRINTING PLANT, *Electrical Review*, 21½ pages, May 24, 1913, p. 1048.

This gives a comparison of the total costs of operating a printing plant by steam power and by purchased current from a central station. The fixed charges and operating expenses of the business, under steam power, were carefully computed from the accounts, and the same items in full detail are determined for the estimated installation of electric service, and a saving of a little over 10 per cent per year on total costs is shown in favor of electric power.

61—Character of Service.

ELECTRICITY IN PACKING PLANTS, illustrated article, *Electrical Review*, 4½ pages, May 24, 1913, p. 1043.

States that while under present conditions it is perhaps impossible for central stations to supply all power required in the very large packing plants, still there are hundreds of instances where an economy can be effected by purchasing energy, and even the largest plants offer opportunities for the sale of some power. Examples of both conditions are given in this article, with data on six typical installations.

614—Heating and Cooking.

ENCOURAGING OFF-PEAK ELECTRIC HEATING AND COOKING, and STANLEY ELECTRIC HEAT STORAGE STOVE, editorial and article, *Electrical Review*, 1½ pages, May 24, 1913, p. 1039 and p. 1070.

States that the only reluctance which central station managers have felt towards vigorous campaigns for building up the day load by developing electric cooking, has come from the fact that as, in most parts of this country, the evening meal is the main repast of the day, a heavy cooking load would seriously augment the lighting peak in the winter months. Now three main devices are available, whose use, if encouraged by limited hour rates for current, will mean practically off-peak service. These are the electric fireless cooker, the Stanley storage cooking stove, which, instead of taking a heavy current for the relatively short period it is in use, takes quite a small current continuously, or over a long period of time, and stores the heat for the intermittent periods of active use; and third, continuously operated water heaters.

INVESTMENT AND RETURN

31—Valuation.

PHYSICAL VALUATION OF ELECTRIC RAILWAY PROPERTIES, by CHARLES L. HENRY, *Aera*, 7½ pages, May, 1913, p. 830.

This is a discussion of the development in the practice of making valuations of public service properties in the past few years, as shown by decisions of courts and commissions, and legislation. The original advocates of physical valuations of railroads were influenced by the wish to reduce rates by cutting out all intangible values, and contended for the cost of reproduction new as the proper method of making valuations, refusing consideration of the actual cost when it involved discounts on bonds, and other sacrifices incurred in bringing the property to its state of efficiency at the time of the valuation. But it is now recognized by nearly all authorities that all classes of property, and all legitimate items

of the original investment must have due consideration in determining "fair value."

An example of this is the work of the Wisconsin Railroad Commission, operating under a law providing that the valuation be of all the "property used and useful for the convenience of the public," which might be interpreted as physical property alone, but has always included careful weighing and regard of all intangible values. Another recent recognition of this principle is found in the report on the bill providing for the valuation, by the Interstate Commerce Commission, of the railroad properties, by the United States Senate Committee, which designates the investigation and due consideration of intangible values.

36—Depreciation.

PHYSICAL VALUATION OF PUBLIC UTILITIES: DEPRECIATION IN ITS RELATIONS TO INVESTMENT, EARNINGS, AND CURRENT VALUE, by R. S. HALE, *Engineering Magazine*, 5 pages, May, 1913, p. 161.

This illustrates the meaning of depreciation and amortization, the principles of their computation, and methods of representing them in accounts, by simple examples of other business transactions, as, for instance, the consideration of an orchard that has to be replanted every ten years; the first five years would show a steady increase of investment, and almost no income, so that if it is then required to sell the orchard, the purchaser must pay such a sum as is the real value of an orchard just ready to bear, an amount adjusted equitably by due regard of the five lean years past, and the five fat years to come, and of the fact that the cost of the trees and their planting is a wasting investment which must be taken care of by a depreciation charge, while if one-tenth of this be charged off each year the balance sheet would indicate a value of one-half the original cost just at the time the orchard began to bear, and the real value was the highest. Even if depreciation were charged off by a sinking-fund method, the balance sheet would not be correct. The only way in which depreciation could be charged so as to have the balance sheet show the real value would be to charge no depreciation until the orchard began to earn, and then to charge it off in big lumps so as to get it cleaned up just when the orchard is to be replanted.

The conclusion is that actual values, while starting from the original cost, must be adjusted for depreciation, not by some arbitrary formula, and not necessarily according to the physical condition at the time, but so as to give what would have been the real value if the owner, like the owner of the orchard, had been free to sell or not to sell, as he chose.

PUBLIC SERVICE REGULATION

22—General Powers of Commission.

LABOR DISPUTES AND THE REGULATING COMMISSION, editorial, *Journal of Electricity, Power and Gas*, May 17, 1913, p. 460.

States that a demand of a newly formed labor organization in California the past week raises a question that materially concerns every public utility company in the West. The organization calls itself the Light and Power Council of California, and is constituted largely by the gas makers, electricians and other labor elements, of one of the largest distributors of gas, water and electricity in the West. The demand is made, without admitting any possible recourse to arbitration, for an increase in daily wages, and a relief from labor one day in seven with full pay. It is pointed out that the public as consumers are the ones most vitally interested in this issue, as under commission regulation they are forced to pay rates which will provide the company with a fair return over and above operating costs. The suggestion is made that our present commission regulation only half-way serves its logical purposes. This selfsame commission should in addition be empowered to review labor contentions with public utility companies, with full and complete powers to act. This would be both rational and reasonable in order to dispense justice to utility, employe and public alike.

252—Commission Annual Reports.

Report of the NEW YORK PUBLIC SERVICE COMMISSION (1st D.), For Year Ending December 31, 1911. Vol. 11, 771 pages.

This volume is devoted to the reports filed by street railways, steam railroads and other common carriers, for the year ended June 30, 1911, giving tables of statistics, with analyses and discussion of these data, furnishing all the detailed information that is sought by investors and the general public as to the operations of these particular properties.

GENERAL**1—Public Service.**

PUBLIC QUALITY OF A PUBLIC SERVICE CORPORATION, editorial, Journal of Electricity, Power and Gas, May 17, 1913, p. 461.

States that a radical change is taking place in public opinion as to the nature of public service corporations, and that the responsibility rests largely with corporation officials, directors and managers, whether the country will be forced into public ownership and operation of utilities, or whether it will continue to be benefited by private initiative, enterprise and capital in the public service. It is here argued that since a monopolistic corporation can be made the means whereby the big fellow, by obtaining highly favorable wholesale rates, can drive the little man out of business, therefore the public interest demands that commission regulation shall progressively control all the rate practice of corporations, and prevent discrimination in prices in favor of the largest as against the small consumer, just as at present no discount is given to large purchasers of postage stamps, or on custom duties to the large importer. The benefit to the companies will be their recognition as private agents doing a part of the public business, and the governmental stamp of approval will give the same endorsement as to the stability of their securities as it now does to government bonds.

739—General Data.

COST OF LIVING, Editorial, The Gas Age, May 15, 1913, p. 493.

This gives tables of prices of gas, and statistics of the cost of living taken from the United States Bureau of Labor Bulletin on retail prices, showing that while the costs of other commodities have been advancing in recent years, the price of gas for light and fuel has been steadily reduced, consistently giving consumers advantage of improvements in manufacture, distribution and increased consumption, so that the average price paid for gas in the United States has been decreased from \$1.035 in 1899, to \$.861 in 1909.

91—Promotion and Growth of the Business.

ELECTRIFICATION OF RAILROADS, Electrical World, 1 page, May 24, 1913, p. 1073, and Electric Railway Journal, 1¾ pages, May 24, 1913, p. 932.

These give abstracts with discussion by members, of the two important papers on railroad electrification, briefly digested in 3 Rate Research 127, 128, read before the meeting of the American Institute of Electrical Engineers in New York on May 20th.

98—Public Relations.

MAKING THE PUBLIC YOUR FRIEND, by A. W. WARNOCK. Aera, 9 pages, May, 1913, p. 841.

This tells of rules which have been issued to employes of corporations to ensure courteous treatment of patrons, gives several examples of tactful signs and notices which convey needed information to the public, makes practical suggestions for the successful handling of complaints, "friend-making letters," and other effective means for bringing about happy, pleasant relations with customers.

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CONTENTS	Page
COMMISSION DECISIONS.....	147
California.....	147
New York (2nd D.).....	149
Ohio.....	153
New York (1st D.).....	154
COMMISSION REPORTS.....	156
New York (1st D.).....	156
REFERENCES.....	157
Rates.....	157
Investment and Return.....	158
Public Service Regulation.....	159
Municipalities.....	159
General.....	160

Rate Research

Vol. 3.

CHICAGO, JUNE 4, 1913

No. 10

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COMMISSION DECISIONS

CALIFORNIA

3—Investment and Return.

Complaint against the PALO ALTO GAS COMPANY Alleging Unjust and Unreasonable Rate for Gas. Decision of the CALIFORNIA RAILROAD COMMISSION Reducing the Rate, March 12, 1913.

The City of Palo Alto, at a special election called for that purpose in accordance with the provision of California Public Utilities Act, transferred to the Railroad Commission all the city's powers over public utilities.

The decision in this case gives a detailed valuation of the physical property, and estimation of intangible values, comparison with cost of reproduction new, deduction for depreciation, consideration of rate of return, and computations of production and distribution costs.

72—Rate Schedules.

The order reduces the rate from \$1.50 per thousand to \$1.20; the minimum charge of 50 cents per month is left unchanged.

314—Overhead Charges.

The percentage allowed for overhead charges is 15 per cent.

366—Depreciation Fund.

For the depreciation fund approximately 4 per cent is approved.

Some interesting points ruled on are as follows:

315.3—Special Contracts.

The contract entered into by respondent for the purchase of the gas distributed by it cannot stand as against the power of the Commission under the Constitution and the Public Utilities Act to fix just and reasonable rates. Otherwise, a utility, by entering into contracts with third parties for the supply of its commodity or otherwise, could effectually nullify the power of the State, under the police power, to supervise and regulate its public utilities. It is assumed that, as a result of this decision, the parties to the contract will make the necessary modifications therein.

34—Rate of Return.

The rate of return allowed is 8 per cent, which is stated to be "at least fair and equitable," and "if anything . . . too high by reason of the fact that the Commission has been more than liberal in establishing the basis of value."

Each case must be judged on its own merits. It may well be that a utility in one community would be entitled to one rate of return while a similar concern in another community would be entitled to a different rate. It may be that a large and solidly established utility will not be entitled to as high a return as a smaller utility which is struggling against adverse circumstances. The most that can be said by way of general principles is that the return should be at least the average return which is earned by other classes of business of the same degree of hazard in the same community. The Commission in fixing a rate of return must be liberal, lest too strict a policy result in turning capital to other fields of enterprise. California needs development by public utilities, and this Commission's policy should be a broad and liberal one, so as to encourage capital to develop the State by legitimate public utility enterprises where needed. The Commission should be careful not to permit an inflation of prices in ascertaining the value of the property of public utility used and useful for the public purpose, but should be liberal in establishing the rate of return on that value. . . .

311—Basis of Valuation.

That in fixing a basis for a reasonable return, all the elements of the case, including the amount of money invested, the cost of reproducing the property new, the value of the property in its depreciated condition, the amount of stocks and bonds outstanding, and others, should be considered and given such weight as the facts may in each case justify. . . .

315.1—Going Value.

That there are certain actual costs incurred in developing the business during its early stages, for which costs the utility is entitled to be reimbursed, just as clearly as it is entitled to a return on the physical portions of its plant, seems to be too obvious for argument. The investor must go into his pocket to meet one kind of cost just as clearly as the other. There are two schools of thought with reference to the manner in which the so-called "going concern" value or "development cost" should be met. The supporters of one school are of the view that these items should be added to capital account, while those of the other school believe that they should be taken care of by rates higher than would otherwise be in effect, during the first years of the utility's existence. The difficulty with the first view is that its adoption will result in the increase of the permanent capital account and the consequent payment of higher

rates for all time to come. The difficulty with the latter view is that it casts upon the patrons during the first years the duty of paying rates even higher than the usual relatively high rates which are paid at the outset of a utility's history. I am of the opinion that such costs, legitimately and wisely incurred, should be taken care of in some way, but the exact method to be pursued, and the extent to which consideration should be given to such items, will depend upon the facts of each particular case. It might well be, for instance, that if the utility is unwisely conceived or struggles against unusual difficulties, the cost of developing the business including the early losses may run up to almost the entire value of the physical plant, if not in excess thereof. It may happen, also, that while in one case the addition of these costs to capital account might be perfectly fair, in another case justice will require that these costs be reimbursed out of higher rates during the first few years, or that some combination of these theories be adopted.

NEW YORK (2ND D.)

3—Investment and Return.

Complaint of the Mayor of Buffalo against the CATARACT POWER AND CONDUIT COMPANY, Alleging Unjust and Unreasonable Rates. Decision of the New York PUBLIC SERVICE COMMISSION. (2nd D.) Reducing the Rates, April 2, 1913.

A brief report of this decision was given in 3 RATE RESEARCH 19, the full text now at hand contains rulings of importance to electric companies on valuation, including consideration of contract values, going value, "investment value," which is pronounced to be the proper value in a rate case, as against "exchange value," or that pertaining to prospective purchase of the business; capitalization of early deficits; depreciation and amortization of the depreciable property of the company, its franchise terminating in twenty years.

315.1—Going Value.

The Commission holds that it has allowed for every actual expenditure, and all costs of establishing the business except those which were properly included in, and paid for as operating expenses,

and therefore going concern value is disallowed in this case as a separate item of property upon which the company is entitled to receive a return, except as it is reimbursed in the general valuation of the plant.

36—Depreciation.

No deduction from the total cost of the property is made for depreciation, the fund which is carried by the company being treated as a sinking fund for the amortization of its property at the end of its assumed term of life.

We may proceed to compute the annual return for use of capital upon the basis of the amount actually invested, without regard to what the actual physical deterioration is, or attempting to compute what portion of the theoretical term of life of each of the constituent parts of the property has expired . . . it is absolutely just to the public and to the company to compute the annual return for use of capital upon the basis of the investment, and so long as the company continues to give good service it will be entitled to an annual return upon that amount, because that is what it has in the business. . . .

Interesting questions, however, will arise at the expiration of the franchise. The company will then be the owner of what will undoubtedly be a well equipped plant, in excellent operating condition, which has been fully amortized; that is, has been fully paid for by the public. The company, however, will be the owner of the plant, and not the public; and if the franchise should be renewed it would be incumbent upon those in authority at that time, charged with the duty of fixing the rate, properly to adjust the equities as between the company and the public. In the rate which should be established at that time there can not properly be any allowance made for the amortization or wearing out of the then existing plant. The rate would necessarily be wholly confined to the return for the use of capital invested. This fact will necessitate very careful accounting methods on the part of the company, and a full appreciation by the public in 1932, if the franchise should be renewed, that no element of amortization or paying for the wearing out of the existing plant can properly enter into the rate so long as the then existing plant is continued in service. When it shall have been replaced, another question will present itself for solution.

34—Rate of Return.

It should be clearly understood, that in reaching these results the Commission does not undertake to fix a precise rate of return upon the capital invested in the public service. Nominally, the return here shown is approximately 6 per cent. Applying the rate as reduced to the business of the future, there is not the slightest question but that it will amount to considerably more than this. No one can tell what it will be until the rate has been tried out. The Commission simply satisfied itself that the proposed reduction would not reduce the revenue below a 6 per cent return, while it seems almost equally certain that the rate will be considerably above that. . . .

314.8—Deficit in Early Earnings.

Although the company may not have a legal right to have such loss treated as a part of its property, still, as a matter of substantial justice, such loss may be considered in fixing the rate so that in

order to obtain for the public service the company may from the rate recoup itself for such loss and be made whole. To state the matter in another form, the loss is not an investment in the business but it is a circumstance which may justify a higher rate when the business does become remunerative than would be just if no such loss had been incurred.

Clearly, there is a very marked distinction between treating such a loss as a property right upon which a return may be legally demanded as a consideration of service, or as a circumstance which may in fairness and equity require that the company should be given a rate which will enable it to reimburse itself for the amount thereof. That this distinction is real and substantial there can be no doubt. If the company in any given year has suffered such a loss in operating expense, and in the next year in addition to a reasonable and proper return has been repaid such loss, obviously it should not continue to be repaid the amount thereof during the succeeding years indefinitely. It should be repaid only once. . . .

311—Basis of Valuation.

Without prolonging the discussion, the conclusion of the Commission is that in this case the fair value of the property used in the public service, or what is equivalent thereto, the fair amount of the investment upon which the return should be computed, may be better ascertained by giving the greater weight to the actual cost as the basis of the inquiry than in any other way. This actual cost may require diminution if it should be found that the expenditures were extravagant or wasteful. It may require increase if it be found that any of the property has actually increased in value since it was brought into the public service, and it may require increase for other reasons. It is not assumed that the actual amount of money expended by the company, and placed upon its books as the cost of the property, is the fair value. It is, however, assumed that such cost taken as the chief basis of investigation will lead to more just and equitable results than any other one basis which is afforded by the evidence in the case. . . .

311.2—Reproduction Cost New.

Practically, the cost or amount of investment is frequently impossible of ascertainment. The conditions surrounding the construction are unknown. The record of the expenditures actually made have not been preserved. Whether such expenditures were made judiciously or otherwise can not be known. In such circumstances, it is incumbent to seek some other method of ascertaining the fair amount of the investment, and the method which has been usually adopted in such cases is that of cost of reproduction new, with or without depreciation.

As a means of ascertaining the amount of the actual investment, it is confessedly imperfect. At best it can produce only an approximation. In most cases it varies so widely from the actual cost as to put the two in a position of actual hostility.

This method of ascertaining the fair amount of the investment, although it has been treated with great favor, is also subject to severe criticism. The first arise from the practical impossibility of ascertaining with any reasonable degree of accuracy the cost of reproduction new. This impossibility has been demonstrated in most attempts which are made. Engineers differ widely in their results, and this when their professional standing and integrity are in every respect equal. Most classes of work involve great difficulties in ascertaining the just unit prices, the amount and efficiency of the labor involved, the skill and push of the superintendents, the proper economies which may be practiced, the unforeseen delays and accidents. To provide against all possibilities of any character which may enhance expense, the experience of the engineer is usually dragged to its depths, his researches into the experiences of others are pushed to the uttermost. The result is that every work is charged with every expense, usually upon a percentage basis, which has ever been found to be attached under any conditions to work of the character under inquiry. The result is inevitable. It is rare that all of the alleged expenses are found in any given work, and the resultant cost is swollen beyond all reason and beyond practical experience. The cost of reproduction new is the result of estimates, and estimates must always be considered and adjudged by the light of the circumstances under which they are evolved. An estimate to induce a plunge into an enterprise is not justly comparable with one designed to justify an existing rate of dividend.

The following quotation from the report to the National Association of Railway Commissioners, above mentioned, sums up one phase of the question with admirable cogency:

"There is such a wide disparity in the prevailing methods of making values of railroad properties that in case two expert engineers, one just as honest as the other, were valuing the same property for the same purpose at the same time, one could arrive at a total value fifty per cent greater than that found by the other expert. This glaring difference in conclusions could easily and naturally follow from the simple adoption of different rules or methods which are today being used in actual practice by able and experienced engineers in different parts of the nation." . . .

(The remaining paragraphs of this important ruling on valuation will be given in the next issue of RATE RESEARCH.)

OHIO**139—Limitations to Service.**

Complaint against the CINCINNATI, MILFORD AND LOVELAND TRACTION COMPANY, to Compel Electric Service. Decision of the OHIO PUBLIC SERVICE COMMISSION, Ordering Service to Be Supplied, May 9, 1913.

This is a complaint by two residents of Milford, Ohio, that having made application for service, the company supplying electricity in the village refused to furnish them with it unless they, the applicants, bear the initial cost of installing poles, wires and other equipment required.

The decision says:

121—Proper Service.

The Commission further finds that the tariff, rules and regulations of defendant on file with this Commission do not provide that the cost of such installation shall be borne by the applicant . . . That defendant, by the laws of Ohio and by the franchise granted to said defendant by said village, is required to furnish its service and product within said village to the applicants therefor, and that defendant cannot require said applicants to bear the cost of such installation, in and around neighborhoods and localities where defendant's transmission system has been heretofore extended. . . .

That said defendant has erected its wires, and has installed its transmission system, . . . has been, and is now, furnishing its service and product to other consumers, in and around the neighborhood and locality where said applicants' premises are located, and that certain of the premises of said other consumers are located at a greater distance from defendant's main transmission lines than are the premises of said applicants. . . .

65—Discrimination.

That said defendant has heretofore supplied its other customers and consumers with its service and product without requiring such customers and consumers to bear the cost of installation, and that, by reason of defendant's requiring the applicants herein named to bear the cost of such installation, defendant has unjustly discriminated, and is now unjustly discriminating against said applicants. It is, therefore,

ORDERED that said defendant, The Cincinnati, Milford and Loveland Traction Company, be, and it is hereby notified and directed to erect the poles, lines and other appliances necessary to furnish said applicants with said service and product, and that it thereupon and thereafter furnish to said applicants its said service and product. . . .

NEW YORK (1ST. D.).**65—Discrimination.**

COMPLAINT OF SAKS AND CO. against the NEW YORK EDISON COMPANY alleging discrimination in rates. Decision of the NEW YORK PUBLIC SERVICE COMMISSION (1st D) ordering the rates discontinued. April 1, 1913. IV. P. S. C. R. (1st D. N. Y.) p. 138.

The text of this case, the first opinion in which was briefly reported in 2 RATE RESEARCH, 194, is now received, and gives the full grounds of the decision, after holding additional hearings since the first opinion, Dec. 20, 1912, that the contracts with Gimbel Brothers, which are the subject of the complaint, were in violation of law.

The rate complained of by Saks and Co., a large department store and competitor of Gimbel Brothers, which is located just across Thirty-third Street, is embodied in Supplement No. 14 to the schedule of rates of the New York Edison Company, filed with the Commission Aug. 8, 1912, effective Sept. 7, 1912, in the form of a rider to be annexed to the contracts of certain consumers, is based upon the fact that the New York Edison Company maintains a substation in the basement of Gimbel Brothers Store, and is as follows:

56—Standard Riders.

In consideration of the supply of this installation directly from the low tension bus-bars of the substation of The New York Edison Company, located upon these premises, and the elimination of the usual underground distributing system, and the electrical losses incidental thereto, a reduction of one-half cent ($\frac{1}{2}c$) a kilowatt-hour will be made from the price of current to which the consumer would be entitled under any of the standard schedules of the Company applying to this service.

It is understood that this modification of the schedule rates as filed with the Public Service Commission, is not made in lieu of the rental value of the space occupied by the substation, which necessarily is an independent matter of realty negotiation, based upon local rental values and corresponding consideration. Further, it is understood that the location of a substation in any part of the City must be determined solely by the service requirements of the New York Edison Company. * * *

715—Time of Effect.

The New York Edison Company opposes the granting of any relief to the complainant on two grounds: (1) That this rider, although effective since September 7, 1912, has not actually been annexed to, and has not become a part of, any contract between the company and any of its consumers, and no reduction in rates has been actually given to any consumer under it; and

613.4—Distribution Economies.

(2) that the terms of the rider are just and reasonable, for the reason that a consumer receiving electric current directly from the bus-bars of a substation is served at less cost than are consumers who receive their supply from the company's system of mains and feeders; and that the stores conducted respectively by Saks & Company and by Gimbel Brothers are served with electricity under substantially dissimilar circumstances and conditions. . .

715—Time of Effect.

(1) In our opinion, when a rate has been filed and published, and has become effective, a consumer who believes that such rate is unjust, unreasonable, etc., is certainly within his rights when he complains to the Commission; and the Commission is also acting legally if it issues an order granting relief, provided it finds that the properly established rate is unjust or unreasonable, although no service contracts have been made, or any charges actually billed or collected, under the rate in question. The Commission may make such an Order without the filing of a complaint, after an investigation upon its own motion. * * *

613.4—Distribution Economies.

(2) The defendant company mentioned several ways in which there is a saving of expense by thus serving the consumer directly from a substation; and evidence was introduced to show that the saving in this case is at least one-half cent per kilowatt-hour, as compared with the average cost of serving other wholesale consumers as a class. * * *

41—Cost of Service.

The fundamental question is, therefore, whether these differences constitute a sufficient basis for a different classification of consumers and a different rate. * * *

The company urges that the difference in rates represents a difference in the cost of service, and argues that a difference in cost of service justified the difference in rates. But the company has argued, in this case and in other cases, that the difference in cost is not the only factor to be considered in fixing rates, and that the establishment of the fact that one consumer or a few consumers can be supplied at less cost to the company than others, does not in itself justify a different classification and a different rate. This principal is well recognized. There are niceties and refinements in cost accounting which are not recognized in rate schedules; and I know of no company, municipality, or regulatory body, which has undertaken to carry out the cost-of-service theory to the last refinement, and to declare that the rate to each consumer, or each small class of consumers, should be determined by the exact cost of supplying

that consumer, or two or three consumers similarly located and similarly served. If this were attempted, electric rates would vary according to a multitude of considerations, such as the time of day, the day of the year, the character of the weather, the distance of the consumer from the substation, the character of the subsurface in the street, the frequency with which meters are read and repaired, lamp renewals made and bills collected, the promptness with which bills are paid, etc.

625—Distance Factor.

The New York Edison Company does not attempt to carry its theory to the same length in other cases. It admits that it is impracticable to establish a "zone" system under which consumers will pay rates according to the distance from substations, for example. Yet it argues in this case that a building having a substation located in a basement is in such a different class from all others that a reduction of one-half cent per kilowatt-hour should be given. If this is proper, why should not the department store next door, which admittedly is supplied at a lower cost than a department store 7 mile from a substation, receive lower rates?

COMMISSION REPORTS

253—Commission Reports of Decisions.

REPORTS OF DECISIONS OF THE NEW YORK PUBLIC SERVICE COMMISSION (1st D.), Vol. 111, January 1, 1912, to January 1, 1913, 807 pages, \$1.50.

This contains a report of all court decisions on appeals from Commission's orders; the amendments to the Public Service Law enacted during 1911 and 1912; and the amendments and additions to the Commission's rules of procedure, besides all opinions and decisions for the year 1912, and memoranda of cases decided without the writing of opinions, from the beginning of the Commission's work six years ago to the close of 1912.

Among the formal decisions directly affecting electrical companies are the following:

	Page
Order Specifying Requirements and Regulations for Testing of Watt-Hour Meters	340
Complaint of the Astor Estate Against the United Electric Light and Power Co., Alleging Overcharging.....	313, 345
Commission Abolishes the Special Contract in Question.	

	Page
Complaints Against the New York Edison Co., the Brooklyn Edison Electric Illuminating Co., and the United Electric Light and Power Co., Alleging Unfair Method of Computing Maximum Demand.....	478
Companies' Practice Sustained.	
Complaint Against the New York Edison Co., Alleging Discrimination Through Special Contract.....	490
Commission Declares Contract in Question Illegal and Void.	
Application of Kings County Electric Light and Power Co. for Approval of the Issue of \$2,500,000 of Bonds to Reimburse It for Moneys Expended Out of Income for Capital Account	473
\$2,000,000 Allowed on This Account, and \$500,000 for Additions and Betterments to Property, to Be Audited by Commission.	

REFERENCES

RATES

61—Character of Service.

CENTRAL STATION SERVICE FOR INDUSTRIAL POWER REQUIREMENTS, Electrical Review, 31 pages. May 31, 1913, p. 1157.

This article comprises a reprint of various data sheets on installations of electrical equipment for twenty-five classes of use, including cotton mills, coal mining, dairies, etc., which have appeared in this magazine for the past seventeen months. As the information given has been gathered by reliable and experienced electrical men with the greatest care to make it accurate, there have been many enquiries for additional copies of these data which are of great use to central station managers in obtaining new business.

41—Cost of Service.

A STUDY MADE TO DETERMINE EQUITABLE WATER RATES FOR THE CITY OF ST. LOUIS, MO. By EDWARD E. WALL, Water Commissioner, in Report to St. Louis Board of Public Improvements. Engineering and Contracting, 3 pages, May 28, 1913, p. 602.

This gives a careful working out of the problem of rate fixing, with tables of costs, tables of schedules in use, and proposed schedules, with calculated revenues, and classifications of service. It is shown that no flat rate schedule can be devised which will do even approximate justice to all, and also that step rates are essentially unsound and unfair, as a consumer can by wasting water (and the same would be true of another product, as electricity) beyond his normal usage, reduce his total bill by getting into the class of the next higher consumption, with lower rate, and the nearer his legitimate use approaches the maximum of his present class, the greater would be his saving by such waste.

INVESTMENT AND RETURN**222—Accounts.**

SOME NECESSITIES OF ACCOUNTING AND OF STANDARD AND UNIFORM ACCOUNTING IN THE SMALLER PUBLIC UTILITY PLANT, AS WORKED OUT BY A SMALL PLANT MAN. Paper read before the Ninth Annual Convention of the Southwestern Electrical and Gas Association. Galveston, Texas, May 21-24, 1913.

This gives in a very simple, non-technical form the main principles on which are based a system of accounts for small central stations, calculated to cover only the essentials of the business, the actual revenues and expenses, and figures of all items and transactions which show in which parts of the business profits are being made, or losses occurring. The possibility is pointed out of keeping accounts in such detail, or in such elaborate methods, that the cost is more than the information is worth, though of course very large properties require exhaustive accounts. But the advantages of the uniformity of accounts and their standardization may be just as great for the small utility with the simplest adequate system of accounts, as for the largest corporations, in enabling them to make exact comparisons of the different items of their business, and so get the benefit of every improvement and economy devised by plants of the same class.

31—Valuation.

KANSAS RAILWAY VALUATION; REPORT OF THE WORK OF THE ENGINEERING DEPARTMENT, PUBLIC UTILITIES COMMISSION, FROM DATE OF ESTABLISHMENT TO NOVEMBER 1, 1912. By C. C. WITT, Engineer to the Commission. Public Service Regulation, 4 pages, May, 1913, p. 217.

This gives the plans which have been followed in making valuations of the railroad properties of the State, this work having been pursued after conferences with the railroad companies, which have been required to turn in inventories of their physical property taken in 100-mile strips, which information has then been checked up by field inspection by the Commission's engineers. The items considered in making appraisals include cost to reproduce new, present physical value, to obtain which tables of average life have been used, original costs, right of way, earnings and operating expenses during construction, engineering and superintendence which is estimated as 4 per cent of the total cost of the roadway construction and right of way, organization expenses, interest and taxes during construction, and contingencies. Nothing has been allowed for such intangible values as going value, good will, development cost, franchise, and cost of securing business.

PUBLIC SERVICE REGULATION**223—Reports.**

Order of the NEW YORK PUBLIC SERVICE COMMISSION (1st D.) for Filing of Information of Officers and Directors of All Corporations. April 18, 1913.

This order requires every corporation, subject to the jurisdiction of this Commission, to keep on file with it a correct list of all officers of such corporation, and to notify the Commission of any change in its executive personnel within five days, and also of the appointment of a receiver or assignee, or the purchase or acquisition of the property or franchises of any corporation or person subject to the Commission's jurisdiction.

2—Public Service Regulation—Law and Practice.

THE REGULATION OF PUBLIC UTILITY CORPORATIONS BY COMMISSION, Electrical Review, 3 pages, May 31, 1913, p. 1121.

This gives a historical sketch of public service regulation by commissions, as it has been developed to meet the need which has been answered in other business more or less successfully by competition. The latter is now recognized as impractical, because of its obvious economical unsoundness, in the public service field, where the alternatives are at present admitted to be regulated monopolies, or government ownership. A map of the United States is given in which is represented by shading the present extent of general commission jurisdiction. An instructive summary of regulation and general tendencies now to be discerned in the various states, with comparisons of the laws and of commission practice on the most important points, as valuation, rate of return, intangible values, and issues of stocks and bonds is furnished by this article, which concludes with a complete list of the officers of the commissions of the various states.

MUNICIPALITIES.**81—Municipal or Local Regulation of Utilities.**

AGAINST MUNICIPAL CONTROL. Report of Illinois Legislative Public Utilities Commission, HON. JOHN DAILEY, Chairman. Public Service Regulation, 3 pages, May, 1913, p. 264.

This is an abstract of the report of the Committee appointed by the Forty-seventh General Assembly, to investigate regulation of utilities, with the view of drafting a commission law for Illinois. After a thorough study of the whole subject, including visits to the New York, Wisconsin and Massachusetts Commissions, and a survey of what regulation has actually done in these and other states, and a review of Chicago's method of regulation and the results obtained there, the report takes a decided stand against divided responsibility for utility control.

GENERAL**91—Promotion and Growth of the Business.**

CENTRAL STATION COMMERCIAL POSSIBILITIES, by H. S. KNOWLTON, Electrical Review, 3 pages. May 31, 1913, p. 1113.

This is an outline of the rapid all around extension in the use of electricity at the present time. Some of the fields in which the fastest growth is taking place are electric vehicles, which are multiplying as battery charging is offered at low rates during selected off-peak hours; ice making, a most desirable load; district steam heating which, when thoroughly studied so as to eliminate all waste and ensure scientific efficiency in this service, will afford a new method of meeting the isolated plant competition; and electric heating and cooking, which have now reached a stage of convenience and economy that is causing their increasing adoption.

91—Promotion and Growth of the Business.

UNIFIED PUBLIC UTILITIES IN CENTRAL ILLINOIS, and A GREAT RURAL NETWORK, illustrated article and editorial. Electrical World, 12 pages. May 31, 1913, p. 1123 and p. 1146.

This is a full description, with map, many illustrations and diagrams, and a table of unit costs of house-wiring, of the great interconnected system for supplying 125 communities and extensive rural service, throughout a radius of about 350 miles in Central Illinois, from 700 miles of 33,000-volt transmission lines. The diversity factor which will be obtained by the variety of service which is being taken on, will greatly lower the cost. Some of the large users will be coal mining operations, about 200 coal mines being located in the region, and water pumping both for small town water-plants, and for drainage work, as there are about 200,000 acres of rich farming land just enough below high water level to require drainage by pumping at certain seasons, which has heretofore been done by steam plants and at a greater expense and inconvenience than electricity offers. Also there are in operation at present nearly a dozen artificial ice plants chiefly active in the summer, and so serving to equalize the load. The editorial pronounces the whole system a very striking example of modern tendencies toward consolidation and physical unification of small properties, and notes that its further development is worth watching with close attention.

95—Progress in the Art.

THE WORLD'S LARGEST POWER PLANT. Illustrated article and editorial, Electrical World, 13 pages, May 31, 1913, p. 1122 and p. 1157.

This describes, with twenty-five illustrations and diagrams, the power plant at Keokuk, on the Mississippi River, one-half of which, developing 150,000 horse-power is now practically completed, and the second section, to generate a like amount, is in plan, the whole to ultimately give a full capacity of 300,000 horse-power. Many new and important features have been required owing to the gigantic amount of water to be used, at a head of only about 32 feet, and descriptions are given of the measures for safeguarding all the operations, and of special devices for meeting various emergencies.

The editorial analyzes the main features of this unique plant, and states that the general supply of energy is just beginning to get under way, the possibilities of the situation have as yet barely been touched; and that in brief the enterprise is a huge one, with great output, high cost and immense possibilities of industrial usefulness over a large and prosperous territory.

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Rate Research

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CONTENTS	Page
COURT DECISIONS	163
United States Supreme.....	163
New York.....	164
COMMISSION DECISIONS	168
New York (2nd D.).....	168
New Jersey.....	171
COMMISSION REPORTS	172
REFERENCES	173
National Electric Light Association Convention.....	173
Rates.....	175
Investment and Return.....	176

Rate Research

Vol. 3.

CHICAGO, JUNE 11, 1913

No. 11

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COURT DECISIONS

UNITED STATES SUPREME

132—Protection from Competition.

MADERA WATERWORKS V. CITY OF MADERA et al. To Enjoin Municipal Competition. Decision of the SUPREME COURT OF THE UNITED STATES Affirming the Decision of the FEDERAL CIRCUIT COURT for the Southern District of California, Dismissing the Bill. April 28, 1913, 33 Supreme 571.

The essentials of this decision are:

This is a bill in equity to restrain the city of Madera from proceeding with the construction of a water plant in competition with one that the plaintiff and its predecessors have built under the Constitution of the state. . . . The ground of the suit is that the state Constitution provides that in any city where there are no public works owned by the municipality for supplying the same with water, any individual or corporation of the state shall have the privilege of using the public streets and laying down pipes, etc., for the purpose, subject to the right of the municipal government to regulate the charges. It is argued that this provision, coupled with the duty imposed on the governing body to fix water rates annually, and the corresponding duty of the water company to comply with the regulations, both under severe penalties, imports a contract that the private person or corporation constructing works as invited shall not be subject to competition from the public source. Otherwise, it is pointed out, the same body will be called upon to regulate the plaintiff's charges, and to endeavor to make a success of the city works. Furthermore, the plaintiff is forbidden by other provisions to divert its property to other uses, and, again, will be called on to pay taxes to help its rival to succeed. Thus, it is said, the city proposes to destroy the plaintiff's property, contrary to the 14th Amendment of the Constitution of the United States.

But if, when the plaintiff built, the Constitution of the state authorized cities to build waterworks as well after works had been built there by private persons as before, the plaintiff took the risk of

EDITORIAL NOTE.—All indented matter is direct quotation.

what might happen. An appeal to the 14th Amendment to protect property from a congenital defect must be vain. . . . It is impossible not to feel the force of the plaintiff's argument as a reason for interpreting the Constitution so as to avoid the result, if it might be, but it comes too late. There is no pretense that there is any express promise to private adventurers that they shall not encounter subsequent municipal competition. We do not find any language that even encourages that hope, and the principles established in this class of cases forbid us to resort to the fiction that a promise is implied.

The constitutional possibility of such a ruinous competition is recognized in the cases, and is held not sufficient to justify the implication of a contract. . . . As there is no contract, the plaintiff stands legally in the same position as if the Constitution had given express warning of what the city might do. It is left to depend upon the sense of justice that the city may show.

(Ed. Note.—This decision emphasizes the value of contracts guaranteeing protection from competition, such as the Indeterminate Permits of the Wisconsin and Indiana laws. Every utility should be alive to the need of some protection against competition.)

NEW YORK

3—Investment and Return.

People ex rel. KINGS COUNTY LIGHTING CO. v. WILCOX ET AL., PUBLIC SERVICE COMMISSION (1st. D. N. Y.) On Writ of Certiorari to Review Commission's Determination of Company's Gas Rates. Decision of APPELLATE DIVISION OF NEW YORK SUPREME COURT, Reversing the Determination, and Remitting the Case to the Commission for Further Action. May 9, 1913. 141 New York Supplement 677.

The original decision of the Commission in the complaint against the Kings County Lighting Company, which is here reversed, has not been given in RATE RESEARCH, awaiting its review in the courts, where it has been since the date it was rendered by the Commission, after rehearing, November 17, 1911. 2. P.S.C.R. (1st. D. N. Y.) p. 659. In that opinion the main items decided adversely to the company, and which led to its appeal to the courts, were the matters of going value, land appreciation, paving over mains, and reproduction cost new without deduction for depreciation. The rulings on these points are given as follows in the syllabus prepared by the Commission placed at the head of the opinion.

The Commission's Decision.

315.1—Going Value.

The defendant company asked that a large sum be added to the appraised value of its property to represent what is called "going

concern" value. This was defined by it as "the enhancement in the value of the physical property of any concern due to the business that concern has and is doing." It appears that the estimate was not based on any cost of expenditure that had actually been made by the company, but was rather an estimate or capitalization of the profits which an existing concern enjoyed or would enjoy in the excess of the profits that might accrue to an investor who set out to build a duplicate plant and develop for it a business that would overtake in volume the business that the existing plant may be presumed to have attained at some future date. The company's expert computation of "going value," was admitted to be determined very largely by the rates now charged, and on the earnings of the company under the rates being investigated. HELD—that, in the opinion of the Commission, whatever allowance should be made for the various factors covered by the somewhat vague and indefinite term "going-concern" value, beyond what has already been allowed under specific headings, should be made in determining the fair rate of return. . . .

32—Appreciation.

In determining the fair present value of the property of a public-service corporation, for the purposes of a rate case, all of the property in use—the land as well as the plant—should be taken at its present value, and just as the depreciation of the depreciable property is deducted from the cost-to-reproduce-new, in order to determine the present value of such property, so the appreciation in the value of the land should be added to its original cost in determining its present fair value; provided, however, that, just as in determining operating expenses year by year, an allowance to meet depreciation in the value of the plant should be included as a charge against income, so it follows that appreciation in the value of land should be placed as a credit to the income account of the company. . . .

312.9—Paving Over Mains.

HELD, that the company cannot be deemed entitled to charge a rate sufficient to pay dividends upon property which it does not own, which it has not constructed, and for which no expenditures have been incurred by it, either directly or indirectly; that is to say, it should be allowed a fair return upon the cost of repaving the streets at the time when the mains and services were laid, for that is an expense which the company had to incur, but the cost of reproducing pavement over mains should not be included, unless such pavement has been laid at the expense of the company. . . .

311.2—Reproduction Cost New.

The cost-of-reproduction-new is not necessarily an indication of the fair present value of the property of a public-service corporation, inasmuch as depreciation and deferred maintenance are important factors therein. . . .

The Court's decision overrules the Commission and sustains the contentions of the Company on each of the points except the last, Reproduction Cost New, on which the Court holds that a deduction must be made for depreciation.

The Court's Decision.**315.1—Going Value.**

I am unable to perceive a logical difference between allowing "going value" in the valuation of a plant when it is to be taken entirely by the public, and allowing the same element when valuing the same plant for rate making purposes. In each case the thing to be done is the fair appraisalment of present value. What difference in principle can there be because in one instance all is taken for the use of the public, and in the other the public limits the earnings. In the case at bar the Commission says it "disallowed this claim in determining fair value * * * but did consider it in fixing the rate of return." If so, there is no proof of that fact in the record.

(On this point the Commission's decision said that a "fair rate of return. . . . should not exceed $7\frac{1}{2}$ per cent.")

32—Appreciation.

In its calculation of income, however, [the Commission] has included an item of \$35,000 as the annual increase in the value of the land of the company. This we regard as erroneous. The land is used for the business of the company and is appropriate therefor. So long as the land is held and used for such purpose increase in value cannot be considered as income or as available for the payments of debts, taxes or dividends. . . .

312.9—Paving Over Mains.

While as to other items of physical property the Commission professed to appraise at its full value, and to apply the rule of cost of reproduction new, less accrued depreciation, it refused to include in the value of mains under paved streets more than the original cost of repaving when the mains were laid. When the mains were laid, the streets were unpaved, sandy tracts in an unbuilt-up community. Mr. Connette, the engineer for the Commission, placed the cost for restoring pavement, as it existed when the services were laid, at \$12,717. That amount was allowed by the Commission in its valuation. . . .

It seems to me that we ought to regard that question as settled. The fact that these streets have been paved and the region generally improved has caused sales of land, the building of houses, and the increase in population, which has enabled the company within the last few years to make profits, and declare dividends which for many years it was unable to do. The argument that streets paved or unpaved make no difference in the earning power of a gas company is unsound. The earning power of a gas plant depends upon its constituency. If it has nobody to sell gas to, it can make no profits; and, if there are no decent streets, there will be few people. The value of a plant of any kind is certainly affected by its location, and the demand for its products. If a new company undertook to install a duplicate plant, the cost of repaving under the present streets would properly be allowed for. Hence it is a necessity element of reproduction value. It is a valuable advantage which the present owner has which a prospective buyer would have to pay for. Like increased land values, a school of thought might condemn it as "unearned increment," but the law does not yet refuse to include it in its definition of property capable of ownership, and entitled to protection. . . .

311.2—Reproduction Cost New.

[The Company] files an interesting brief presenting an elaborate argument in support of the proposition that as it is conceded that the plant of the relator operates at 100% of efficiency there should be no deduction for so called "accrued depreciation." This term is used to designate, somewhat inartificially, the liability presently accrued toward the ultimate cost of replacement of still efficient apparatus. [The Company] therefore repudiates the concession to scrap value and claims that as the company, being a public service corporation, must always keep its plant up to efficiency, and must replace property when worn out, it is entitled to a rate based upon 100 per cent. efficiency because it will never be allowed to capitalize replacement, but must provide it when necessary. It therefore must be allowed to provide a replacement fund out of its earnings. [The Company] argues that it makes no difference to the consumer whether that fund is actually accumulated and on hand or not, because the replacement must be made, if there is such a fund, from it; if not, by the stockholders directly. If, on the other hand, the valuation of the tangibles is reduced by a percentage, in this case 21 per cent., it can never be provided for in the only proper way—out of earnings.

We are unable to adopt [the Company's] interesting theories for these reasons:

(1). It seems to be thoroughly established that the value of the tangible property upon which the company is entitled to a rate

which will procure a fair and just return is the present value; that is, at the time of the appraisal for rate making purposes.

(2). That in the absence of accurate evidence as to actual value, the cost of reproduction new takes the place thereof.

(3). That as the property being valued is not now, [new] in order that "cost of reproduction new" may represent the actual condition—the amount presently invested—there must be a deduction therefrom.

(4). That this represents the amount required to replace apparatus still in use, but in process of wearing out, at the end of useful service.

(5). That this allowance for depreciation has been made in various kinds of cases where present value is required to be estimated. . .

COMMISSION DECISIONS

NEW YORK (2ND D.)

3—Investment and Return.

CATARACT POWER AND CONDUIT COMPANY RATE CASE.

The following paragraphs conclude the rulings on valuations handed down by the NEW YORK PUBLIC SERVICE COMMISSION (2nd D.) in this case begun in 3 RATE RESEARCH 149.

311—Basis of Valuation.

If instead of "value" we were to say "fair amount of investment," we would satisfy in such an inquiry every elementary sense of justice and every requirement imposed by courts in their enumeration of the processes to be followed in reaching the desired result.

The organizers of a public service business at the outset of their operations are possessed of, or have power to obtain, a certain amount of floating capital which they may use in any way open to the investment of any such capital. The determination is made to convert this floating capital into fixed capital of a public service plant. The carrying out of this determination involves the destruction of the floating capital. The completion of the plant finds that the floating capital is gone and the plant is the outcome of the destruction. Personal service, energy, and skill have also entered into the work of the creation of the plant, for which a pecuniary reward of some amount is just.

The reasonable sum upon which the owners of this new plant are entitled to a return is the amount of floating capital which has been sacrificed or destroyed in its production, and a just amount for the energy and skill which have been expended in producing

the property which is useful in serving the public. The rate of return upon these amounts is variable, depending upon the rate which the floating capital might have earned in other employments, the risk of the enterprise, and the length of time it may reasonably be expected to earn returns.

311.1—Original Cost.

Generally speaking, these amounts may be summed up in one word, "Costs." "Costs," however, can not be accepted as a fixed amount from which there can be no deviation. It may have been extravagant and wasteful. Clearly, the extravagance and waste are the loss of the owners, and should not be a burden upon the public. Skill and ability of an unusual order may have been displayed in constructing the plant, with the result of large savings in its cost as compared with cost under ordinary and average management. Such savings should be the reward of the skill and ability used in producing them, and can not be claimed as a matter of right by the consumer. Extraordinary misfortune may have occurred in the course of construction, enhancing materially the cost which might have been reasonably expected. Whose is the loss? The construction may have happened to fall in a period of either abnormally high or low prices. When prices have resumed what may be deemed to be their normal level, who is to reap the benefit of the one or bear the burden of the other—the owner or the consumer?

It is not essential to press this line of discussion further. Such consideration as the foregoing show that actual cost may not always be a basis upon which the return is to be computed, although it is a factor of large importance as being the best test of the sacrifice made in constructing the public utility.

311.4—Market Value.

In a rate case, the exchange value can not logically be a basis of inquiry for the reason that exchange value depends upon the net income, present and prospective: and the net income depends upon three principal factors, one of which is the rate, the others being amount of service sold, and cost of operation. A reduction of rate which does not increase the demand for service necessarily diminishes the net income, and hence by so much diminishes the exchange value of the property employed in the service. If the reduction of rate increases the demand for service, such reduction may increase the exchange value, provided the increase in service be sufficiently great, and without increase in operating expenses sufficient to absorb the increased earnings.

Exchange value being dependent upon the rate, it is clear that such exchange value is not the subject of inquiry in a rate case. To base the rate upon the exchange value would be generally merely

to continue the rate, and it would absolutely continue it so far as the value is dependent upon the rate. If the change in rate affects the net income, it changes the exchange value; and if there be no change in exchange value there can be no change in rate.

In a very careful and exhaustive report upon plans for ascertaining the fair value of railroad properties, submitted to the National Association of Railway Commissioners at their annual convention for the year 1912, the committee said:

"But no one expressly contends that value for rate making purposes should be based upon the earnings of the property. If the rates are too high the earnings would be too high, and vice versa. One can not be used to justify the other, or else we must assume that whatever is, is right."

There would seem to be no escape from the conclusion that when courts have used the term "fair value" in rate cases, they had something in mind different from "exchange value," or in other words, "value." It is not to be supposed that they did not comprehend that value depends upon the rate, and that a change in rate means a change in value if it affects net income. The earning power of a property is what determines its ratio of exchange. High net earnings will give it a high ratio of exchange. No earnings at all, either present or prospective, will deprive it of practically all value. . . .

331.1—Amount of Investment for Rate Making Purposes.

In rate cases, the question in determining the value is not how much has been or can be got out of the property, but how much has been put into it, in order that from that fact it may be determined how much may be reasonably taken out of it in the way of net income. The cause of complaint in a rate case, and hence the point in issue, is whether too much return has been obtained from the public, and whether that return ought not to be cut down to a smaller sum; whether the net income is not too large and should not be smaller. In such a case the earning power of the plant is uncertain until the decision as to the rate is made, because that is the very thing the controversy is about. It follows that in a rate case the earning power can not be considered in determining what is the value of the property for the reason that such value depends upon the earning power and the earning power depends again upon the rate, and the rate depends upon the decision which may be made in the case.

The reduction ordered is a horizontal cut of 28 per cent on all rates, with the exception of those charged to the International Railway Company.

NEW JERSEY**132—Protection from Competition.**

Application of the CONSUMERS GAS COMPANY of Millville for the Approval of an Ordinance Granting a Franchise to Construct and Operate Gas Works and Distribution System in the City, Now Being Served by the MILLVILLE GAS LIGHT COMPANY. Decision of the NEW JERSEY BOARD OF PUBLIC UTILITY COMMISSIONERS, Dismissing the Application. April 18, 1913.

The applicant company requested the Commission to reconsider its decision in the case of the Atlantic Highlands Gas Company, decided May 31, 1911, (see 2 RATE RESEARCH 291) which was a closely similar application, and was denied. The following principles laid down in that case are quoted in the present decision:

1. Services afforded by public utilities tend eventually to be rendered under conditions of monopoly.
2. Competition is likely to be short lived.
3. Where competing companies serving the same consumers finally unite, the unnecessary duplication of plant and appliances entails a permanent burden upon the public.
4. The creation of various boards and commissions with supervisory powers over public utilities and often with eventual powers of rate-fixing, demonstrate that the illusive doctrine of competition in this field is being superseded by an experimental regime of strictly regulated monopoly.

The present opinion endorses the former findings of the Commission, and adds:

2—Public Service Regulation—Law and Practice.

In Chapter 195 of the Laws of 1911 will be found a carefully enunciated definition of public utilities. An examination of the various provisions of the entire act seems to establish one fact conclusively, that public utilities are segregated in various respects from other industrial enterprises, and are subjected to a specific regulation from which other industrial enterprises are practically exempt.

228.1—Approval of Franchises.

If, in the exercise of its legal discretion, the Board shall decide that a duplication of apparatus for affording a given service, together with the associated double investment involved, and the double disturbance of the public highways, is "not necessary and proper for the public convenience" and "does not conserve the public interests," the statute evidently empowers the Board to withhold its assent from a grant which would issue in public inconvenience or which would prejudice the public interests. Any

other interpretation of this section of the law would empty it of all significance.

The further statement of this Commission's position on competition, as given in the Atlantic Highlands case, is repeated:

132—Protection from Competition.

That public opinion has come to recognize the almost inevitable outcome of such temporary competition between public utilities is evidenced by much recent legislation. The creation of various boards and commissions with supervisory powers over public utilities, and often with eventual powers of rate-fixing, demonstrates that the illusive doctrine of competition in this field is being superseded by an experimental regime of strictly regulated monopoly.

. . . Where competing companies, with franchises, serving the same customers, finally unite, the unnecessary duplication of plant and appliances entails a permanent burden upon the public. Even where prices, after due hearing, may be prescribed by public authority, some regard must be paid to the interests of bona fide investors. The prices set must have some reference to the capital legitimately sunk in the equipment of the formerly competing plants. It not infrequently results that the prices eventually authorized are higher than they would need to be if no more than the necessary amount had been originally invested in plant and appliances adequate for the supply of consumers. Thus the evils of an ill-judged competitive experiment in a field unsuited therefor perpetuate themselves and burden the consuming public.

and the conclusion is announced:

In general, then, the Board holds that the decision reached in the Atlantic Highlands case was, first, strictly legal, not in conflict with the common law, or with the statutes or the constitution of this State, and second, that it is in line with wise public policy.

COMMISSION REPORTS.

252—Commission Annual Reports.

TWENTY SIXTH ANNUAL REPORT OF THE INTERSTATE COMMERCE COMMISSION. Dec. 16, 1912. 224 pages.

The work of this Commission dealing wholly with interstate railroad, telegraph and telephone, express companies, etc., is of general interest only. On page 36 the following announcement is made:

Gas and Electric corporations.—There is now in effect a uniform system of accounts for gas corporations and electric corporations in the District of Columbia, as prescribed by the Interstate Commerce Commission, in accordance with the act of Congress approved March 3, 1909, effective January 1, 1910. This classification is mentioned here in order to bring into view the complete work of the division in the construction of accounting classifications.

REFERENCES

THE NATIONAL ELECTRIC LIGHT ASSOCIATION, THIRTY-SIXTH CONVENTION, CHICAGO, ILL., JUNE 2-6, 1913.

Papers of high merit, of practical value to electrical companies in all branches of the industry were read at the sessions of the Convention. Many gave the results of actual experience in electricity supply in the various fields, and the reports of the committees represented careful and thorough study of the different classes of service, and special lines of development of the business.

Among these important papers the following are noted as of particular interest to readers of **RATE RESEARCH**:

71—Schedules.

REPORT OF THE RATE RESEARCH COMMITTEE, E. W. LLOYD, CHAIRMAN. 108 pages.

This treats of rates for every class of service, with recommendations on all the elements of rate schedules, discounts, minimum charges, minimum for extension of lines, lamp renewals, standard riders, terms and conditions; points out correct principles of rate making; gives model forms of contracts; and the actual rate sheets of ten companies, in different States, arranged in the form of standard schedules recommended by the Rate Research Committee, with comment by the committee on each set of rates, and suggestions for improvements in form, while maintaining the same rate of charges.

These schedules, covering every variety of electrical service, have been in some cases, but not in all, prepared in consultation with the companies mentioned, and are intended to give substantially the same results as the schedules in use by the companies, but to give these results by means of uniform, simple statement that can be used by any company, changing only the figures.

61—Character of Service.

REPORT OF THE COMMITTEE ON ELECTRICITY IN RURAL DISTRICTS, CENTRAL STATES, C. W. PENDELL, CHAIRMAN. 126 pages.

This gives, with many illustrations, curves of costs, and tables of various farm industries, extensive data on the supply of electricity in rural communities. From a consideration of the expense of distribution, and other factors, the conclusion is reached that the "farm business" itself, as developed at present, does not furnish the central station companies with returns commensurate with the necessary capital investment, but many industries in rural districts are here outlined, which it would pay to connect up, and which have heretofore been overlooked in the rush to secure city business.

61—Character of Service.

ELECTRIC RAILWAY LOADS ON CENTRAL STATIONS, by E. P. DILLON. 16 pages.

This points out the desirability of both city and interurban railway loads for central stations, and states that the growing tendency to combine various communities over large areas under one generating system, and recent improvements in transforming apparatus, notably 60-cycle rotary converters, are strong factors in the development of the business. Two illustrations and six load curves are given.

61—Character of Service.

CENTRAL STATION POWER IN COAL MINES, by W. A. THOMAS. 14 pages.

This shows why power can be delivered by central stations for coal mining operations cheaper than an isolated plant can furnish it, and conclusive proof of the profitability of this service, particularly in combined lighting and power stations, is supplied by the fact of the construction of central stations mainly for the service of coal mines. A map of the United States, showing the distribution of coal fields, and five load curves, are given.

61—Character of Service.

REPORT OF THE COMMITTEE ON REFRIGERATION, GEORGE H. JONES, CHAIRMAN. 66 pages.

This presents a compilation of extensive information on the rapidly growing and profitable business of electrical refrigeration. The facts which have been collected from all parts of the country are very conveniently arranged, many illustrations are given, and tables of data on various uses of refrigeration, and on several large ice plants.

61—Character of Service.

REPORT OF THE COMMITTEE ON ELECTRICITY ON THE FARM, EASTERN STATES, JOHN C. PARKER, CHAIRMAN. 14 pages.

This gives a study of the controlling conditions of the use of central station power for agriculture in the east, where the smaller size of farms, and the more intensive nature of the industry, have been found to give a very attractive seasonally off-peak business in the case of small companies. The most important points to keep in mind for farm installations are convenience, ruggedness and low cost, with equitably preferential power rates.

A two-page table of a summary of tests on electrically operated farm machines gives most interesting information of costs and output on this service.

616.1—Street Lighting.

REPORT OF THE COMMITTEE ON STREET LIGHTING, JOHN W. LIEB, JR., CHAIRMAN. 16 pages.

This deals with the problems of street lighting from the point of view of the contracts with the municipalities for this service. Commercial considerations, a number of very interesting technical problems, measurements of illumination, attempted changes due to progress in the art, are all involved in such contracts, which the report strongly emphasizes should be better understood and more clearly written, as controversies and suits arising from them have in the past

placed companies in false and unjust positions before the public. The report is divided into three parts:

1. Brief review of the history of street lighting specifications.
2. Brief discussion of the various measures of illuminating power of street lamps which have been proposed from time to time.
3. Recommendations of the committee regarding contractual basis for street lighting.

222—Accounts.

REPORT OF THE COMMITTEE ON UNIFORM ACCOUNTING, E. J. BOWERS, CHAIRMAN. 40 pages.

This urges very forcibly that all electric lighting industries take steps towards adopting the Uniform System of Accounts recommended by the National Electric Light Association, and points out that such adoption by the companies will have much weight in inducing Public Service Commissions to accept the system. Abstracts are given of all the papers pertaining to accounting matters that have been read before the Association in previous years, arranged under an index by topics with references to the volumes of the Proceedings in which they may be found.

735.5—Meters.

REPORT OF THE COMMITTEE ON METERS, W. H. FELLOWS, CHAIRMAN. 47 pages; and CODE FOR ELECTRICITY METERS, prepared by the Electrical Testing Laboratories under the Instructions of the Joint Meter Committee of the Edison Illuminating Companies, and of the National Electric Light Association. 210 pages.

These reports comprise the fullest and most reliable information on meters, and furnish an adequate treatment of the problems of metering, and of the best practice in this important branch of the business. Illustrations and diagrams are given, and a page of errata in the "Electrical Meterman's Handbook." Some interesting information of co-operation with Public Service Commissions, extracts from rules on metering from the District of Columbia Law, and mention of the action of the Wisconsin and New York Commissions on this question are included.

91—Promotion and Growth of the Business.

ELECTRIC SERVICE FOR TOWNS OF LESS THAN 5,000 INHABITANTS, by J. EDWARD KEARNS. 14 pages.

This describes the advantages which have been secured by consolidation of several small plants, with the distribution of power from one main central station, the resulting substitution of substation apparatus for generating equipment, making possible the replacing of obsolete material by that of newer design, and more efficient and economical operation. It tells from experience the information to collect in order to handle this type of development successfully.

RATES

41—Cost of Service.

THE ECONOMIC VALUE OF GAS AND ELECTRIC PLANTS, by DR. FRIEDRICH GREINER, translated for The Gas Age, 3-4 page. June 2, 1913. p. 567.

This gives a comparison of the statistics of 195 gas plants and 124 electric plants in Germany, with tables of costs showing much lower initial investment for gas works than electric plants, and that the original costs are not dependent to such a large degree on the size of the plant, the larger electric plant being relatively cheaper to build than the small one.

According to one table, the gross costs for gas in the larger gas plants range between two and three cents per cubic meter, while those of electric current run from three to six cents per kilowatt hour. The total costs for electric current are therefore from 60 to 100 per cent more than those of gas.

It is claimed in the field of heating and cooking, the comparison is even more favorable to gas. A cubic meter of gas has a calorific value of 5,000 calories, while a kilowatt-hour of electricity has 865 calories. With an efficiency of 50-60 per cent for gas, and 90 per cent for electricity, we would have a cubic meter of gas with 2,500-3,000 calories equal to a kilowatt-hour electricity of 778 calories energy, which is three to four times as high a value for gas as for electricity. For practical comparison we must add to this the very high installation costs and costs of apparatus for electric cooking and heating utensils. When using gas and electricity for power, we have a specific use of 600 litres per horse-power, corresponding to about 900 kilowatt-hours per horse-power for electricity, and the annual operating costs between gas and electricity for 1,000 hours stand in ratio of 3 : 4.

611—Light.

SOME TENDENCIES IN ELECTRIC LIGHT, *Electrical Review*, 3 pages. May 31, 1913. p. 1102.

This discusses the development in electric lighting, first in the department of street lighting, detailing various points which must receive consideration in order to attain the most successful results, and the types of light best suited to different conditions; and next are given similar treatments of outline, sign and window illumination, and interior lighting. Many useful suggestions are made for popularizing and extending lighting service, the importance of securing artistic effects, and the desirability of the company's furnishing expert advice to make all installations perfect, are shown.

INVESTMENT AND RETURN

31—Valuation.

THE COMING PROBLEM OF VALUATION, editorial, *Electric Railway Journal*, May 31, 1913. p. 955.

States that the forthcoming valuation of the railroads by the Interstate Commerce Commission, while brought about by popular demand for rate regulation, may prove to be the first step in government ownership, according to Herbert Spencer's observation in "The Sins of Legislators" that laws which affect the social structure often result in changes undreamed of by their sponsors. It is added that the great desideratum is that the authorities should treat the railroad investor with the same degree of justice that they do the capitalist in other fields whose increment is not questioned. The probability of states following the example of Congress and extensively ordering valuations of public service properties makes it advisable for companies to be prepared for this, and keep their accounts accordingly.

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June 18, 1913

No. 12

RATE RESEARCH



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RATE RESEARCH COMMITTEE
OF THE
NATIONAL ELECTRIC LIGHT ASSOCIATION
120 WEST ADAMS STREET ~ ~ ~ CHICAGO

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CONTENTS		Page
COURT DECISIONS		179
United States Supreme		179
New Jersey		180
Pennsylvania		180
Tennessee		181
Maine		181
New York		182
COMMISSION DECISIONS		182
New York (1st D.)		182
California		183
REFERENCES		186
Rates		186
Investment and Return		187
Public Service Regulation		190
Municipalities		191
General		192

Rate Research

Vol. 3.

CHICAGO, JUNE 18, 1913

No. 12

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COURT DECISIONS

UNITED STATES SUPREME

3—Investment and Return.

Suit by the STATE OF MINNESOTA RAILROAD AND WAREHOUSE COMMISSION V. GREAT NORTHERN RAILROAD, NORTHERN PACIFIC RAILROAD, et al. On appeal from UNITED STATES CIRCUIT COURT for the District of Minnesota. Suit to establish jurisdiction of State Commission over Interstate Traffic and Rates. Decision of the UNITED STATES SUPREME COURT sustaining State's power of jurisdiction. June 9, 1913.

This important decision has been awaited with more interest by the business and financial forces of the country than any other since those in the Standard Oil and Tobacco trust cases, and caused the worst decline of the year in stocks on Wall Street. The railroads lose their contention for full control by the Interstate Commerce Commission as against the separate State Commissions, their plea being that intrastate and interstate business must be judged and regulated together on the ground that there is an interblending of operations, a common use of the same right of way, terminals, rails, bridges, etc., that the proportion of interstate and local business varies from year to year and even from day to day, that all railroad property in one state aids the carrier's entire business and is an element of value with respect to the whole property and the business in other states; that securities are issued against the entire line of the carrier, and cannot be divided by states and therefore tariffs should be made with a view to all the traffic of the road, and should be fair as between through and short haul business, and that in substance no regulation of rates can be just which does not take into consideration the whole field of the carrier's operation irrespective of state lines. The Court finds that if this is so and the situation has now become such that adequate regulation of interstate rates cannot be maintained without imposing requirements with respect to intrastate rates, then it is for Congress to determine the measure of regulation it should supply, as the present Interstate Commerce Act does not apply to business within the borders of the states.

The principle of the paramount authority of Congress in the matter

EDITORIAL NOTE.—All indented matter is direct quotation.

is explicitly maintained by the decision, but until such time as Congress sees fit to act the state power to regulate carriers within its borders continues. A fuller analysis of the principles laid down in the decision, and its specific rulings on points of interest to electric companies, such as basis of valuation, appreciation, depreciation, etc., will be given from the official text of the decision in the next issue of **RATE RESEARCH**.

NEW JERSEY.

132—Protection from Competition.

BOROUGH OF COLLINGSWOOD V. STATE WATER SUPPLY COMMISSION. On writ of Certiorari to Review New Jersey State Water Supply Commission's Refusal of Permit to Construct Municipal Water Plant. Decision of **NEW JERSEY SUPREME COURT** Affirming Commission's Order. April 1, 1913. 86 Atlantic 660.

The Water Commission found that the Borough of Collingswood was already adequately supplied by an existing private plant for all its present or reasonably anticipated future needs, at fair and reasonable rates, and therefore it would not be proper to allow the municipality to make any draft on the State's water resources, which the Commission is charged with the duty of conserving. The court sustains this ruling. In the Water Commission's decision, in reference to the rights of the company at present furnishing the supply, it is stated that it would be unjust

for the public authorities to lend their assistance to injure or destroy a lawful business, conducted as required by law, and in which large sums of money have been invested in good faith.

PENNSYLVANIA.

81—Municipal Regulation of Utilities.

BOROUGH OF KITTANNING V. AMERICAN NATURAL GAS CO. Suit to Recover the Annual License Fees in Arrears for Several Years. Decision of the **SUPREME COURT OF PENNSYLVANIA** Adjudging Fees Excessive. Jan. 13, 1913. 86 Atlantic 717.

The ordinance in question charged license fees to cover the cost of inspection by the town's police officers, of \$30 per mile for the mains and pipes of gas and water companies, and the poles and wires of telegraph, telephone and electric companies.

The decision says:

In the present case the evidence shows that the aggregate amount of the license fees charged on all the companies similarly situated in the borough, and which contributed to the cost of inspection, so greatly exceeded the actual cost of inspection as to warrant a finding that the charges were excessive, and to justify the conclusion that the ordinance was unreasonable. . . it will not do to

shut our eyes to the real facts, and permit a municipality to do that which the law says must not be done: that is, raise general revenue under the guise of a police regulation. . .

TENNESSEE.

139—Limitations to Service.

FARMER V. MAYOR AND CITY COUNCIL OF NASHVILLE. Suit to compel Water Service, which was Cut Off by the MUNICIPAL WATER PLANT because of Delinquency in Payment of Water Tax by a Former Tenant of the Premises. Decision of TENNESSEE SUPREME COURT, Adjudging the City Water Plant's By-Law Unjust and Void. April 24, 1913. 156 Southwestern 189.

This municipal company had adopted as a by-law the rule "Herein-after all assessments for unmetered water consumers shall be assessed against the owners of the property in place of against the consumers." A tenant had gone away without paying her water tax, the new occupant of the premises tendered to the city the proper amount in cash under its rules and regulations to secure unmetered water service for six months, but this was declined and the water connection cut off.

The court decides that under its charter obligation to furnish water to all the inhabitants of the city, the water plant cannot limit its service by any such plan of dealing only with property owners; and that there is no duty or obligation upon the part of the landlord to furnish water to his tenant.

We hold, both upon reason and authority, that the by-law interposed as a defense to the refusal of the defendant to furnish the complainant water for domestic purposes is unreasonable, unjust, arbitrary, and void.

MAINE.

132—Protection from Competition.

CRAWFORD ELECTRIC COMPANY V. KNOX COUNTY POWER COMPANY et al. Suit to Enjoin Defendant from Supplying Electricity, on Ground of Prior Incorporation and Charter Right of Complainant Company, Which, However, Has Never Operated. Decision of Supreme Judicial Court of Maine, Denying Injunction. March 17, 1913. 86 Atlantic, 119.

The bill is dismissed as to the Knox County Power Company, which, though incorporated for the purpose of supplying electricity, disclaims any intention of doing so, and the judgment is rendered in reference to an individual who is actively engaged in furnishing electricity. A discussion of franchises is given, and several legal defini-

tions of franchises are quoted in the decision, which adjudges as follows:

This sharply raises the question whether a corporation, organized under the general law, and having by its charter the right to supply electricity in a town, but never having exercised that right, although incorporated for a period of 15 years, can prevent an individual, who has a permit from the municipal officers, from maintaining his system in the public ways of the town, and carrying on the general business of furnishing electricity for lighting, heating, and mechanical purposes.

It is our opinion that this question must be answered in the negative, and that the injunction prayed for should not be granted.

NEW YORK.

14—Relations of Corporations With Each Other.

Suit by CONTINENTAL SECURITIES COMPANY against the INTERBOROUGH RAPID TRANSIT COMPANY, and others, to obtain a Preliminary Injunction to Restrain the INTERBOROUGH-METROPOLITAN COMPANY from Voting on Stock Which It Holds of the INTERBOROUGH RAPID TRANSIT COMPANY. Decision of the UNITED STATES DISTRICT COURT, NEW YORK, Denying the Injunction, February 27, 1913, 204 Fed., 521.

The Court says:

The Court of Appeals has indicated that it approves the proposition that corporations occupying through special consents or franchises the public streets and places, and supplying the public with their utilities, are a class by themselves, to which the ordinary policy of the state with regard to unrestricted competition does not apply. With this indication as to what may be expected to be the decision of the court of last resort when the question . . . may come before it, it seems that an injunction of the sort now asked for, which is not of right, but rests in the discretion of the court, which is asked to issue it, should not be granted.

COMMISSION DECISIONS

NEW YORK (1st D.).

139—Limitations to Service.

Complaint of Frankel Brothers against the NEW YORK EDISON COMPANY, to Compel Auxiliary Service. Decision of the NEW YORK PUBLIC SERVICE COMMISSION (1st D.) Dismissing the Complaint. June 2, 1913.

Frankel Brothers maintain an isolated plant in their building, and furnish their own electricity, but depend upon the Edison Company, under an Auxiliary and Breakdown Contract, for emergency supply, and use on Sundays, holidays, etc.

After this contract was made Frankel Brothers began to supply current from their private plant to the Phipps Tenements, immediately south of their building. The Phipps Tenements discontinued the Edison service in order to take the service supplied by Frankel Brothers, which was provided at rates 15 per cent lower than the schedule of the Edison Company. The Company then canceled its contract for breakdown service with Frankel Brothers. The latter immediately filed a complaint with the Commission, asking that the company be required to continue the service. The Commission found that the Edison Company's contract with Frankel Brothers provided that the installation should not be increased except with the written consent of the Company; that no consent had been obtained, and that therefore the company could not be compelled to continue the service.

CALIFORNIA.

3—Investment and Return.

Application by a San Diego Water Company for AUTHORIZATION TO INCREASE RATES FOR WATER. Decision of the CALIFORNIA RAILROAD COMMISSION, Granting the Application, and Ordering Better Service, March 28, 1913.

This decision results in allowing the Water Company to set aside nine sets of contracts which had been entered into in previous years for supplying water at rates much below those the Commission finds to be just and reasonable. The holders of the contracts protest against a raise of rates, and at the same time ask the Commission to enforce better service.

The opinion cites and discusses all of the important litigated cases on the power of a water company to contract, decided by the Supreme Courts of the several states, and by the Supreme Court of the United States, and the following conclusion is announced:

315.3—Special Contracts.

The right to fix a rate by contract is subject to the power of the State to substitute a rate fixed by the properly constituted authorities for the rate agreed upon by contract. . . .

It appears sufficiently from what has been stated herein and from the cases herein reviewed, that it is not violative of the provision of the Constitution of the United States which denies to the states the power to impair the obligation of contracts, for a state to fix a rate which shall apply to a public utility such as a water company, which conflicts with the rate agreed upon by such utility and its consumers in a contract valid when made, and if this rule can be invoked in reference to a water company, it, of course, can be equally well invoked in the case of any other utility. . . .

“As in a state of civil society, property of citizen or subject is ownership subject to the lawful demands of the sovereign, so con-

tracts must be understood as made in reference to the possible exercise of the rightful authority of the government and no obligation of a contract can extend to the defeat of legitimate governmental authority." . . . United States Supreme Court, 1871, 172 Wall., 550.

The rule is well established that contracts are always made subject and subordinate to the powers of government, and such contracts are entered into subject to the full legal effect of this rule, and it is no impairment thereof for the State in the proper exercise of its authority to disregard them. . . .

It can no longer be questioned that this Commission has the right to fix the rates which may be charged by the applicant and prevent deviation from such rates, contracts to the contrary notwithstanding, and by reason of the fact that this same question is continually coming up with reference to utilities other than water companies, I deem it proper at this time that we announce a similar conclusion with reference to all utilities. It is my opinion that no contract affecting the relationship which exists between a public utility and its patrons or in any other way affecting the public, is of any effect in the face of this Commission's authority, except this Commission shall approve the same as a rate, which it has a right to do under the Public Utilities Act, providing such action will not bring about discrimination.

Other interesting rulings are:

31—Valuation.

It is fortunate, therefore, that the Supreme Court of the United States has failed to define "value" and has contented itself with pointing out certain elements that should be considered, leaving the determination of the composite fact "value" to the discretion of the tribunal empowered to act. My own view is that the nearest and fairest approximation which may be made to correct "value" upon which a public utility shall be allowed to earn is the amount of the investment wisely made, and this view is not at all in conflict with the position of the courts in this regard. The elements which we have been directed to consider may all well be secondary evidence of this ultimate fact. . . .

The Commission having found that larger earnings must in justice be allowed to the Company, says:

41—Cost of Service.

As much of this added burden as is possible should be placed upon the domestic consumers, for two reasons. First, this class of service is more expensive both to serve originally and thereafter to maintain.

45—Value of Service.

And second, it will stand without hardship such increase. This second reason for a higher rate is recognized in every class of utility and its validity as regards freight classification is so well established that it is unnecessary to cite authorities. Gold ore is no more expensive to transport than coal, yet it may be and is assessed a much higher rate proportionately than the slightly added risk at all warrants.

221.1—Issues of Stock and Bonds.

APPLICATION OF SAN DIEGO CONSOLIDATED GAS AND ELECTRIC COMPANY for Permission to Issue \$500,000 of six per cent Debenture Bonds. Decision of the CALIFORNIA RAILROAD COMMISSION granting Permission for an issue of \$106,000. March 8, 1913.

The Commission excludes certain items in the company's application as not being properly capitalizable, and disapproves of certain dividends which had been paid.

The rulings in these points are as follows:

If a bond discount were capitalized by the issue of other bonds, the amount of bonds outstanding in any case in which the original bonds were sold at a discount would manifestly be in excess of the value of the property, a thing which this Commission will not permit. The expenses incurred in a municipal ownership campaign are not properly chargeable to capital account. Nothing has so far come of the investigation made by Lovell, or the Warners Ranch power investigation. These items should certainly be held in suspense until they actually add to the value of applicant's property. The security owned by applicant, as hereinabove outlined, also are not proper subjects for capitalization. . . .

It becomes necessary now to refer to an extra dividend declared by applicant in 1912. . . .

During the year 1912 applicant declared a regular dividend of 7 per cent on all its outstanding stock, both preferred and common. In addition thereto, applicant on January 30, 1912, authorized a special dividend of \$147,000, and on July 1, 1912, another special dividend of \$108,600, making a total of \$255,600, which was paid by applicant in the year 1912 as special dividends. . . .

The dividend as declared was paid to Standard Gas and Electric Company, which company is applicant's largest creditor, and also the owner of practically its entire capital stock. Applicant's business is increasing tremendously and the need for new funds to construct extensions is a pressing one. Why, under these circumstances, funds in the treasury . . . were paid in the shape of dividends instead of being kept in the treasury to meet the company's obligations, is not quite clear to me. In case the applicant

had confined itself to its regular 7 per cent dividend there would now be available \$255,600 to meet its obligations, and the amount of debenture bonds or other securities for the issue of which applicant asks authorization, could be reduced by that amount.

While a strict policy might demand, in view of the declaration of the special dividend . . . that no debenture bonds be authorized at the present time, I am willing to recommend that the effect of such a conclusion be limited to the moneys now due to the Standard Gas and Electric Company, and that the debenture bonds sufficient to pay the amounts now due to the four San Diego banks be issued.

144—Mergers.

APPLICATION OF THE ELSINORE ELECTRIC LIGHT AND POWER COMPANY TO SELL, AND OF THE SOUTHERN SIERRAS POWER COMPANY TO PURCHASE, THE PLANT AND EQUIPMENT OF THE ELSINORE COMPANY. Decision of the California Railroad Commission granting the application. March 12, 1913.

The decision states that the needs of the public will be subserved by the granting of this application, which is done subject to this condition:

The consideration of \$7,500, which the Southern Sierras Power Company is herein authorized to pay for the plant and equipment of the Elsinore Electric Light and Power Company, **shall not be taken before this Commission, or any other public authority, as representing, for rate fixing, or other purposes, the present value of the property** of the Elsinore Electric Light and Power Company, herein authorized to be transferred.

REFERENCES

RATES

41—Cost of Service.

WHY LARGE POWER UNITS ARE MORE ECONOMIC THAN SMALL ONES, Editorial, *Engineering and Contracting*, June 11, 1913. p. 647.

Whether the generation of power is by steam or by falling water the reasons why large generating units are more economic than small ones wherever the demand for power is such as to give a high load factor, are, the first cost per horse power of power generating machinery decreases as the size of the units increase; the annual cost of attendance is less per horse power; and the diversity factor is more favorable.

"Diversity factor" is commonly defined as the quotient found by dividing the sum of the peak loads of the several power consumers by the station peak load. The greater the number of power consumers the more likely is it that there will be such diverse requirements for power that the peak load at the station will be far less than the sum of the individual peaks of the power consumers. Hence it may happen that 1 kilowatt of central station capacity will take care of

3 kilowatts (or more) of peak loads of individual power consumers, simply because the customers' peaks do not all come simultaneously, but at diverse times. The combination of these three elements, low unit first cost, low unit attendance cost, and high diversity factor, explain the rapid disappearance of small power stations in and about cities.

61—Character of Service.

MOTOR DRIVE IN CEMENT MILLS, illustrated article, *Electrical Record*, 4 pages. June, 1913. p. 26.

This describes the power requirements of the various machines used in the processes of cement making, and their output. Tests have shown an average of from 16 to 20 kilowatt-hours per barrel of cement. The manufacture of cement involves continuous hard service, 24 hours a day and 365 days a year. Tables of data, showing machinery operated, power requirements, and motor equipment in such installations are given.

612—Power.

PURCHASED POWER IN NEW YORK STATE. *Electric Railway Journal*, 2 $\frac{3}{4}$ pages. June 7, 1913, p. 1016.

This information is compiled from the reports furnished by the railway companies of the state of New York to the Public Service Commission (2d D.). The amounts of power purchased by the different companies are given, and brief abstracts of the contracts. Prices paid range from 3.5 cents per kilowatt-hour for smaller amounts where the consumption falls below a certain specified minimum use per month, and .5 cents per kilowatt-hour for large quantities.

61—Character of Service.

ELECTRICITY IN KNITTING MILLS. Illustrated article, *Electrical Review*, 6 pages. June 14, 1913, p. 1263.

This discusses the advantages of electrical operation in knitting mills, such as uniform drive, constant speed, reduced fire risk, improved lighting conditions, etc. Operating data on a number of typical plants purchasing power are given.

INVESTMENT AND RETURN

3—Investment and Return.

CATARACT POWER AND CONDUIT COMPANY TO APPEAL. *Electric World*, June 14, 1913, p. 1301.

The BUFFALO GENERAL ELECTRIC COMPANY has decided to accept the amended order of the New York Public Service Commission (2nd D.), reported in 3 RATE RESEARCH 115 and 131. The statement of its president says that while the serious reduction of income which will result from the change in rates has been a matter of concern to the directors, yet the opinion of the Commission that the reduced rates will result in a much greater consumption and consequent additional revenue has been accepted. The CATARACT POWER AND CONDUIT COMPANY, see 3 RATE RESEARCH 149 and 168, has appealed from the decision on the ground that the Commission has no power to interfere with the contracts made between it and the Buffalo General Electric Company.

31—Valuation.

CAN ENGINEERS BE TRUSTED TO ARBITRATE FAIRLY AND INTELLIGENTLY BETWEEN THE PUBLIC INTERESTS AND THE PROPERTY INTERESTS? Editorial, *Engineering News*, 2 $\frac{1}{4}$ pages. June 5, 1913. p. 1187.

This discusses the statement of Senator LaFollette that an economist rather than an engineer should be the head of the board who will have charge of the railroad valuation work to be carried on by the Interstate Commerce Commission under the new federal Railroad Valuation Law. His argument is that engineers' practical experience, gained generally as employees of private interests, and in valuing public utilities for purchase and consolidation has always been from the viewpoint of the profit which private interests could secure from the public, but the economist by his very training deals with the whole problem from the public's standpoint, that is, the standpoint of the just relation between private interest and public interest.

The editorial comment urges that this is an essentially inaccurate view of this matter, and that there are no men who have a broader and fairer understanding of the economic questions in connection with the valuation of public utilities than have engineers, and one in search of sound discussions of the economic and legal principles underlying such valuation will find more such discussion in the proceedings of engineering societies and in the reports rendered by engineers than anywhere else. There are hundreds of millions of dollars' worth of work in progress in the United States today, the performance of which depends upon the impartial adjudication of the engineer in charge as between the contractor and the employer. It is further stated from a wide personal acquaintance with engineers, that in the great majority of cases their personal sympathies are with the public interests rather than the property interests.

31—Valuation.

THE MATHEMATICS OF VALUATION, editorial *Journal of Electricity, Power and Gas*. June 7, 1913, p. 531.

The fact that appraisers seldom agree as to the value of a public service plant is not because of individual bias but from the lack of a uniform basis of valuation. The value of the physical property can be established by determining correct unit prices and multiplying, the difficulties arise over intangibles, such as franchises and going value. In the past the tendency has been toward an arbitrary and artificial standard for these factors, with such uncertainty and tentativeness as have characterized all incomplete sciences.

A most excellent remedy has been recently suggested by Mr. H. F. Stimpson in the Bulletin of the Efficiency Society. He bases the solution on the fact that energy is a property common to all service and commodities supplied by public utility companies. By the application of energy to material the latter is transported and transformed in such a manner as to be fit for the use of man, when it becomes a commodity. As all types of energy spring from a common origin, the sun, it may not be unreasonable to infer that their several differences are merely those of volume and intensity. The suggestion is made that the discovery of such a common denominator, together with the duty of certifying to the resultant measurements should be entrusted to a Federal commission, just as the duty of coining money is so entrusted.

313—Prices.

PRICES OF ENGINEERING MATERIALS; PRICE CHANGES AND THE BUSINESS OUTLOOK. *Engineering News*, 5 pages. June 5, 1913. p. 33.

36—Depreciation

OBSOLESCENCE AND DEPRECIATION FOR LOCOMOTIVES, editorial, *Electric Railway Journal*, June 7, 1913. p. 997.

States that one of the important considerations in the estimates of possible savings of a projected electrification of a railroad is the allowance which should be made both for the second-hand value of the old locomotive equipment and for the rate of depreciation of the new.

A brief summary of the cost, scrap value, average life, etc., of engines is given, with comparisons of the lack of economy in using old locomotives requiring continual expense for overhauling and high operating costs, as against the use of the present electric locomotives with an efficiency of around 90 per cent.

36—Depreciation.

THE IMPORTANCE OF PROVIDING FOR DEPRECIATION, editorial, *Public Service*, June, 1913, p. 197.

This is a statement of the manager of the Idaho Telephone Company before it was purchased by the Bell Telephone Company, telling of the heavy loss to the stock holders through not having realized the rapidity of depreciation of telephone property, now estimated to amount to a necessity of total replacement every ten years. No reservation was made from earnings for depreciation, and no dividends paid. On the sale of the property to the Bell Company, appraisers found material depreciation, and in consequence fixed a price of \$210,000, when the aggregate investment of the stockholders had been about \$400,000.

38—Taxation.

THE RELATION OF TAXATION TO SERVICE RATES, by N. T. GUERNSEY. *Public Service*, 2¼ pages. June, 1913, p. 216.

States that the principle of taxing public utilities is a correct one, though such taxation is entered in the accounts as an operating expense and paid by the public; for while it is true that every item of expense paid by a public utility must ultimately be paid back by the public, this is not in fact taking money out of one pocket and putting it into another. This may be made more clear by using a concrete illustration. In the city of Des Moines the taxes paid by the gas company amount to approximately 7.22 cents for each thousand feet of gas which it manufactures and sells. This is another factor in fixing the rate and as a consequence, each consumer pays this exactly in proportion to the amount of gas furnished, that is, exactly in proportion to the benefit he derives from the service. If the rates were reduced 7.22 cents per thousand feet and the company were exempt from taxation, this loss of revenue would have to be made up out of general taxes which are levied without reference to the use of gas, and which fall upon railroads and the other public utilities, and upon non-resident property owners as well as upon the persons to whom the gas is furnished. The fair theory is that the cost of furnishing the service of a public utility should be paid by those who enjoy the benefits of the service.

112—Franchises

THE LENGTH OF FRANCHISE, by P. S. ARKWRIGHT. Paper read before the Second Annual Convention of the Georgia Section of the National Electric Light Association. *Stone and Webster Public Service Journal*, 6 pages. June, 1913, p. 387.

This points out the inexpediency from every point of view of short term franchises. A higher rate of interest or larger discount is required by the banker on the bonds; also within this shorter term the investment must be amortized, therefore, since the interest of the public is to get the lowest reasonable rate for the service, it is distinctly against the public interest that the term of the franchise should be unreasonably limited. As the franchise approaches its end, no company can afford to make an extension or make improvements in its plants, and the service very greatly deteriorates. Consequently, with short term franchises, the public must pay higher rates, receive indifferent and restricted service, and lose the opportunity of the adoption of the more economical apparatus that time may develop in the industry.

Since public utilities hold their franchises subject to public regulation and control of their services and rates, there is no sound argument for short term franchises, and since a company is compelled by law to furnish good service to all of the community without unjust discrimination and at reasonable rates, it should be protected against competition, and the consequent rate wars, or raids against the business that it has established, and it is justified in demanding this measure of fair treatment from municipalities in the interest of the stability of its investment and the economy of its business.

228—Franchises.

SUPREME COURT DECISION AFFECTING FRANCHISE RIGHTS. *Electrical World*, $\frac{1}{2}$ page. June 14, 1913, p. 1293.

The Denver (Colo.) Union Water Company has operated under a franchise granted in 1890, limited to 20 years, with the stipulation that upon its expiration the city might either purchase the plant at its appraised value, or renew the franchise on certain stated terms for another twenty-year period, but neither course was made binding upon the city. In 1907 the city passed an ordinance providing for an immediate appraisal of the plant, and the fixing of a schedule of water rates for the next twenty-year period. The appraisers returned a valuation of \$14,400,000 in 1909, but failed to fix the rates. In 1910 the city adopted a charter amendment, creating a public utilities commission, voted a bond issue of \$8,000,000 for a municipal water works, and \$7,000,000 thereof was offered the water company for its plant. This offer the company refused, and secured in the lower courts temporary injunctions to restrain the city from constructing a municipal plant or issuing bonds for the same. The Supreme Court reverses these decrees, and sustains the city's contention that the franchise had expired and the rights of the company had ceased entirely, without obligation on the part of the city to renew.

PUBLIC SERVICE REGULATION

2—Public Service Regulation—Law and Practice.

SOME DANGERS OF PUBLIC SERVICE COMMISSION CONTROL, by GEORGE A. LEE, former Chairman Washington Public Service Commission. *Public Service*, $1\frac{1}{2}$ pages. June, 1913, p. 205.

This emphasises the harmfulness of political influences or control of public service commissions, and the evil results of allowing any but the best available men from the point of view of ability and character, of fearless and judicial turn of mind, to handle the important matters of regulation of utilities. It states that the greatest enemy of fair, equitable and economical regulation is the unscrupulous agitation for "home rule" by municipal politicians.

2—Public Service Regulation.

THE REGULATION OF PUBLIC UTILITIES IN WISCONSIN, by COMMISSIONER HALFORD ERICKSON. *Journal of the Western Society of Engineers*. 42 pages. May, 1913. p. 398.

This paper with discussion by members, read before the Joint Meeting of the Western Society of Engineers and the American Institute of Electrical Engineers, abstracted in 3 RATE RESEARCH 9 and 41, is given in full as above. It contains most interesting and instructive information on the crucial points on which utilities are being regulated by the Commission.

2—Public Service Regulation—Law and Practice.

PUBLIC SERVICE COMMISSIONS—INVESTORS AND THE PUBLIC, editorial, *Electrical Engineering*, June, 1913, p. 243.

States that among the benefits conferred by the state public service commissions are the investigations they have made of the operations and revenues of the utilities, and their control of issues of securities in accordance with sound financial principles, thus not only safeguarding the public against any but legitimate enterprises, but assuring to well managed companies the degree of confidence to which they are entitled. The hearings held by commissions and their decisions and reports have supplied much important and reliable financial information to the public and investors, and all such facts given out by commissions, as being from a disinterested source, have greater weight than when coming from the corporations themselves. Another service performed by the commissions and of great benefit to all concerned is prescribing of more uniform and scientific accounting systems. The writer suggests that a further admirable undertaking for commissions in co-operation with the government census work, would be the compiling of complete, detailed up-to-date statistics of the earnings, capitalization, etc., of all public service corporations.

268—Public Service Laws.

A PUBLIC SERVICE COMMISSION FOR IDAHO. *Public Service*, 1½ pages. June, 1913, p. 206.

This is a brief summary of the new Commission law of Idaho, giving condensed statements of its main provisions covering the generally familiar requirements for fair and reasonable rates, adequate service without discrimination, publishing of schedules, etc. A certificate of public convenience and necessity must be obtained from the Commission before construction of a public utility plant may be begun, or any right or privilege exercised or any franchise or permit obtained. Full powers are conferred upon the commission to fix rates, make investigations, inspect public-utility properties, regulate service, examine books and records, hold hearings, compel attendance of witnesses and enforce obedience of its orders and rules, subject to penalties for infraction.

MUNICIPALITIES**81—Municipal Regulation of Utilities.**

UNDESIRABILITY OF "HOME RULE" OF UTILITIES, by B. H. MEYER, formerly Chairman of the Wisconsin Railroad Commission, and present member of the Interstate Commerce Commission. *Public Service*, ½ page. June, 1913, p. 212.

This gives a brief sketch of the injustice, oftentimes corruption, inequitable rates and poor service that have been caused by municipal regulation, with its bargaining of city councils with utilities, and its exploiting of the public service situation by the municipal office holder or office seeker equally ready to barter away the rights of the honest investor, or the just claims of the public.

It is stated that local control of public utilities has resulted in honeycombing the service throughout the country with unjust discriminations in comparison with which the railway discriminations of the past, in the height of their existence, lose some of their notoriety. The central commission has taken the utilities out of politics, and the cry for "home rule" should be shown up as most often instigated by the local politician who has lost the means of accomplishing his selfish if not corrupt desires.

GENERAL

199—General History of Utilities.

STATISTICS FOR THE MANUFACTURE OF GAS. Bulletin of the Bureau of the Census, Department of Commerce; Manufactures, 1909. 19 pages.

This Bulletin gives the statistics for the manufacture of gas for illuminating and heating purposes for the calendar year 1909, as shown by the Thirteenth Census. The general results of the census inquiry are summarized in certain tables presented in connection with the text, while other tables give statistics in detail by states. Special tables are also presented in which comprehensive statistics for the industry are classified according to every important aspect of the business.

784—Lamp Efficiency.

THE RELATION OF THE INCANDESCENT LAMP TO LIGHTING SERVICE, by ROBERT E. CAMPBELL and M. D. COOPER. Paper read before the Thirty-sixth Convention of the National Electric Light Association, Chicago, June 2-6, 1913. 20 pages.

This gives the results of investigations made in the last two years in the voltage drop in commercial, residential and industrial interior wiring as ordinarily installed, with estimates of the consequent losses in revenue to central stations, and in light efficiency to the customers. The lighting service is not the only source of these losses, but heating devices, such as flat irons and all other domestic appliances, if operated "under voltage," similarly cause reduced income for the company and dissatisfaction of the customer. Several tables of voltage conditions as found by extensive and careful tests are given.

91—Promotion and Growth of the Business.

ELECTRIFICATION PROGRESS IN THE UNITED STATES. *Electric Railway Journal*, 41½ pages. June 7, 1913. p. 1006.

This article reviews the progress in steam railroad electrification from the earlier tunnel and terminal work to the long distance and mountain railway projects now in hand. Nine maps and a diagram showing lines which have been electrified in different parts of the country, Boston, New York, San Francisco, etc., are given and a table of total mileage and system of electrification, of electrified steam railroads in the United States in operation and under construction.

98—Public Relations.

RELATIONS OF PUBLIC UTILITY COMPANIES WITH THE PUBLIC, by J. W. GILLETTE. Address before the Annual Meeting of the Arkansas Association of Public Utility Operators, Little Rock, May 5-7, 1913.

This is a paper of excellent suggestions for the managers and officials of all public service companies as to the best conduct of their business to secure the good will and confidence of the communities which they serve. The writer fully appreciates the practical importance and value of such friendly relations as an asset in the business, and tells of measures which have been successfully used to bring about this better spirit.

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No. 13

RATE RESEARCH



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120 WEST ADAMS STREET - - - CHICAGO

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CONTENTS	Page
COURT DECISIONS	195
United States Supreme Court.....	195
Missouri	197
COMMISSION REPORTS	198
Wisconsin.....	198
NEW RATES	199
COMMISSION DECISIONS	199
Massachusetts.....	199
Oklahoma	201
California	201
REFERENCES	204
Rates.....	204
Investment and Return.....	205
Public Service Regulation.....	208
General.....	208

Rate Research

Vol. 3.

CHICAGO, JUNE 25, 1913

No. 13

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COURT DECISIONS

UNITED STATES SUPREME COURT

3—Investment and Return.

THE MINNESOTA RATE CASES, (printed in full in *Public Service Regulation*, 24 pages, June, 1913, p. 282.)

The decision of the UNITED STATES SUPREME COURT upholding the authority of the States to regulate intrastate railroad rates and traffic, was noted in brief in 3 RATE RESEARCH, 179. Noteworthy paragraphs are:

31—Valuation.

It is clear that in ascertaining the present value we are not limited to the consideration of the amount of the actual investment. If that has been reckless or improvident, losses may be sustained which the community does not underwrite. As the company may not be protected in its actual investment, if the value of its property be plainly less, **so the making of a just return for the use of the property involves the recognition of its fair value if it be more than its cost. The property is held in private ownership and it is that property, and not the original cost of it, of which the owner may not be deprived without due process of law.** But still it is property employed in a public calling, subject to governmental regulation, and while under the guise of such regulation it may not be confiscated; it is equally true that there is attached to its use the condition that charges to the public shall not be unreasonable. And where the inquiry is as to the fair value of the property, in order to determine the reasonableness of the return allowed by the rate-making power, it is not admissible to attribute to the property owned by the carriers a speculative increment of value over the amount invested in it and beyond the value of similar property owned by others solely by reason of the fact that it is used in the public service. That would be to disregard the essential condi-

tions of the public use and to make the public use destructive of the public right. . . .

We therefore hold that it was error to base the estimates of value of the right of way, yards, and terminals upon the so-called railway value of the property. The company would certainly have no ground of complaint if it were allowed a value for these lands equal to the fair average market value of similar land in the vicinity, without additions by the use of multipliers, or otherwise, to cover hypothetical outlays. The allowances made below for a conjectural cost of acquisition and consequential damages must be disapproved; and in this view we also think it was error to add to the amount taken as the present value of the lands the further sums calculated on that value, which were embraced in the items of "engineering, superintendence, legal expenses," "contingencies," and "interest during construction." . . .

36—Depreciation.

The master allowed the cost of reproduction new, without deduction for depreciation. It was not denied that there was depreciation in fact. As the master said, "everything on and above the roadbed depreciates from wear and weather stress. The life of a tie is from 8 to 10 years only. Structures become antiquated, inadequate, and more or less dilapidated. Ballast requires renewal, tools and machinery wear out, cars, locomotives, and equipment, as time goes on, are worn out or discarded for newer types." But it was found that this depreciation was more than offset by appreciation; that "the roadbed was constantly increasing in value"; that it "becomes solidified, embankments and slopes or excavations become settled and stable, and so the better resist the effects of rains and frost"; that it "becomes adjusted to surface drainage, and the adjustment is made permanent by concrete structures and riprap"; and that in other ways a roadbed long in use "is far more valuable than one newly constructed." It was said that "a large part of the depreciation is taken care of by constant repairs, renewals, additions, and replacements, a sufficient sum being annually set aside and devoted to this purpose, so that this, with the application of roadbed and adaptation to the needs of the country and of the public served, together with working capital . . . fully offsets all depreciation and renders the physical properties of the road not less valuable than their cost of reproduction new." And in a further statement upon the point, the "knowledge derived from experience" and "readiness to serve" were mentioned as additional offsets.

We can not approve this disposition of the matter of depreciation. . . . And when an estimate of value is made on the basis of reproduction new, the extent of existing depreciation should be shown and deducted.

MISSOURI

54—Minimum Charge.

STATE EX REL. JACOBS V. WATER, LIGHT AND TRANSIT CO. OF CARROLLTON, (pop. 3,452) Missouri. To Compel Electric Service, Which Company had Discontinued because of Customer's Refusal to pay Minimum Charge of \$1, Not Provided for in Schedule of Rates in Company's Contract with City. Decision of SUPREME COURT OF MISSOURI, that Service must be Supplied on Schedule Terms. April 8, 1913. 155 Southwestern 826.

This case turns on the point that no minimum charge clause was inserted in the schedule of rates in the company's contract with the city, though the company had collected a minimum charge of \$1 per month since it owned and operated the electric light plant. The original franchise under which the company operates, provided that the rates should be readjusted every five years by arbitration by two men, one appointed by the town and one by the Company, with appeal in case of disagreement to the Circuit Court.

The rates so adopted for the present five year period, and voluntarily agreed to by the company are: .

For twenty-four hour residence service:

Rate—

12 cents per kilowatt-hour.

Discounts—

If paid on or before the 5th of each month.

10 per cent on bills under \$10.

15 " " " " of 10 to \$15.

20 " " " " " 15 " 20.

25 " " " " " 20 " 25.

30 " " " " over 25.

The court decides that strict adherence to this charge must be observed for the five year term, and no minimum charge made; and in answer to the company's complaint of confiscation of its property through receiving no proper return on its investment for usage of less than \$1 per month says:

It is immaterial that the rate is too low as to some customers, and hence a rate is not unreasonable merely because there would be a loss as to smaller consumers. The better rule seems to be that the company is not entitled to a reasonable profit upon each transaction, but that the regulation of rates is valid, although it precludes a reasonable profit at all as to particular items of the business, where a fair return will result from the rates as a whole.

COMMISSION REPORTS**253—Commission Reports of Decisions.**

Opinions and Decisions of the WISCONSIN RAILROAD COMMISSION, Vol. 7, June 15, 1911, to September 23, 1911, 887 pages; Vol. 8, September 27, 1911, to March 12, 1912, 863 pages.

These are the two last volumes issued of the reports of this Commission, and in them may be found much interesting discussion of all the main questions connected with the regulations of utilities. The arrangement of the material, the completeness of the indexing, the compilation of rulings on all important points given in the index-digest at the back of each volume, classified under headings alphabetically, make these books a model of convenience and accessibility. The principles and methods consistently followed by this Commission in dealing with such matters as competition, valuations, basic considerations in rate making, and municipal acquisition of existing plants, are illustrated in several decisions in telephone, water and gas cases, as well as the following electric cases:

Vol. 7.	Page
Northwestern Light and Power Company.....	59
Complaint of overcharging and discrimination found to be baseless.	
Madison Gas and Electric Company.....	152
Electric Lighting rate reduced.	
Beloit Water, Gas & Electric Company.....	187
Rates reduced.	
Lodi Electric Light Plant.....	745
Free meters ordered, and adoption of "Uniform Classification of Accounts"; minimum charge fixed at 50 cents.	
Vol. 8.	
R. Connor Electric Utility.....	80
Abolition of flat rate service and of discrimination recommended.	
Kenosha Gas and Electric Company.....	119
Rate war with competitor prohibited.	
LaCrosse Gas and Electric Company.....	138
Minimum charge raised from 50 cents to \$1, slight readjustment of rates for commercial lighting and breakdown service.	
Merrill Railway and Light Company.....	270
Company ordered to comply with standards of service, voltage regulations, etc.	

Kaukauna Gas, Electric Light and Power Company.....	409
Valuation of plant determined for municipal purchase.	
Waupaca Electric Light and Railway Company.....	586
Street Lighted controversy arbitrated in favor of company.	

NEW RATES

72—Rate Schedules.

THE CONSOLIDATED GAS, ELECTRIC LIGHT AND POWER COMPANY, of Baltimore, Md., announces the following reduced rates, pursuant to the order of the Maryland Public Service Commission in the rate case reported in 2 RATE RESEARCH 262.

The old rate was 10 cents per kilowatt-hour. Effective July 1, 1913, the new rate for general lighting service is:

Rate—

8.5 cents per kilowatt-hour.

Minimum Charge—

\$1.00 per month.

The former maximum net rate for gas, 90 cents per thousand, is also reduced, the present rate being:

90 cents per thousand for first	50,000 cubic feet per month.
85 " " " " next	50,000 " " " "
80 " " " " excess over	100,000 " " " "

Discount—

10 cents per thousand cubic feet when bills are paid within ten days.

COMMISSION DECISIONS

MASSACHUSETTS

72—Rate Schedules.

Application of the WESTFIELD, MASS., MUNICIPAL LIGHTING PLANT for Permission to Reduce Rates for Gas and Electricity. Decision of the MASSACHUSETTS BOARD OF GAS AND ELECTRIC LIGHT COMMISSIONERS Granting the Application. May 24, 1913.

The present rates are, for gas, \$1.30 per thousand cubic feet with 20 cents discount for prompt payment; and for electricity, lighting rate, 12 cents per kilowatt hour, with 2 cents discount for prompt payment; power rate, 5 cents per kilowatt-hour with quantity discounts ranging from 10 per cent on monthly consumption of 187 kilowatt-hours to 42 per cent on 2,798 kilowatt-hours.

The new rates authorized are for gas, \$1.00 per thousand cubic feet net; and for electricity,

GENERAL LIGHTING SERVICE

Rate—

7 cents per kilowatt-hour.

Discounts—

None.

GENERAL POWER

Rate—

4 cents per kilowatt-hour for less than 500					kilowatt-hours per month.			
3	"	"	"	"	500 to 2,000	"	"	"
2	"	"	"	"	excess over 2,000	"	"	"

Discounts—

None.

Municipal lighting plants in Massachusetts operate under a law which gives to the Manager under direction of the local Municipal Light Board, authority to establish prices, but includes the following provision:

The price shall not, except with the written consent of the board of gas and electric light commissioners, be fixed at less than cost, in which shall be included all operating expenses, interest on the net investment in the plant, . . . at the rate paid upon the bonds . . ., the requirements of the sinking fund established to meet such bonds, and also depreciation of the plant, to be reckoned at not less than five per cent per annum of its cost, and losses; . . . Such price shall not be greater than shall allow, above such cost, a profit of eight per cent per annum to the city or town upon its net investment. . . .

6—Rate Differentials.

With respect to the proposed prices for electricity for power, there is no dispute that the 3 and 2 cent rates are less than the cost of the electricity as defined by the statute. The principal effect of the 4 and 3 cent rates as now proposed is to simplify the schedule by reducing the number of differentials, and to lower slightly the existing prices to the smaller power customers. These rates have been in force for a considerable period, and when established may have been less than cost as defined by the statute, but a substantial business has been secured under them with evident advantage to the plant and business as a whole. . . .

If the offering of this rate shall increase the power business and improve the load factor, it will probably result in decreasing to some extent the operating cost per kilowatt hour for current delivered to private customers, street lights and public buildings, and in a much larger decrease in the cost per kilowatt hour for interest and depreciation. Such improvement might bring the unit cost so low, even when computed by the statutory rule, as to make it less than the proposed price.

OKLAHOMA**617—Breakdown or Auxiliary Service.**

Complaint against CHANDLER ELECTRIC COMPANY, Chandler, (pop. 2,024) Oklahoma, to Compel Breakdown Service at Regular Rates. Decision of OKLAHOMA CORPORATION COMMISSION Prescribing Special Rate. May 2, 1913. *Public Service Regulation*, 1/2 page. June, 1913, p. 324.

The complaint is made by a moving picture operator asking for central station service when his gasoline engine breaks down.

The Commission says:

An individual has the right to establish any kind of a water, gas, electric or other pleasure or comfort producing equipment on his own premises as he might see fit, but if such equipment proves at times unreliable he must not expect the public service company to come to his aid, temporarily, at a price under that for which it would furnish its product to a regular patron.

The Commission made an estimate of the cost of furnishing this service, including the use of a transformer for the high voltage arc light required for the moving picture machine, and adjusted the rate equitably on the findings.

A minimum charge of \$3 per month for service facilities is ordered, on the following computations:

Investment in equipment.....	\$80.00
Revenue—	
Operating Revenue.....	36.00
Expense—	
Operating and maintenance (55%).....	\$19.80
Depreciation, (10%).....	8.00
	<hr/>
	\$27.80
Operating income.....	8.20
Per cent. on investment.....	10.2%

The rate to be charged for current is 12.5 cents per kilowatt-hour consumed.

CALIFORNIA**3—Investment and Return.**

Application of the LOS ANGELES GAS AND ELECTRIC CORPORATION to Purchase the Property of Two Other Companies. Decision of the CALIFORNIA RAILROAD COMMISSION, Granting the Application with Conditions. April 10, 1913.

This application is for permission to purchase two plants which are competitors of the purchaser, to be paid for in part by a bond issue, and on investigation it appeared that the property to be acquired

will be discarded from use to the extent of about one-half its present value. The Commission therefore rules that only one-half the purchase price may be capitalized.

Held, in view of the natural tendency of courts to award a rate at least high enough to pay interest on the outstanding bonded indebtedness it becomes very important that due consideration be given to the item of bonded indebtedness (*Smyth vs. Ames*, 169 U. S. 466). If a utility desires to buy out its competitor, it cannot expect that the public authorities will permit it to take on additional bonded indebtedness to cover that portion of the property which it will scrap or junk after its acquisition. A utility has no right to expect the public authorities to authorize the capitalization of junk. If a public utility, in order to rid itself of a competitor, desires to purchase its entire property, including that portion which will be scrapped, it must expect to pay for the scrap out of its reserve or in some other way which will not be charged up against the public.

Held, That the purchase and sale of the property be authorized for the sum of \$175,000, and that the purchasing company be authorized to issue bonds against this property in the face value of \$87,500, and that the remaining portion of the purchase price be taken out of surplus accrued to date. It would not be fair to provide that the moneys which are not to be secured from the sale of bonds should be taken out of future earnings, because if that were done, the public would pay for the duplicated property after all, as it would be compelled to pay higher rates in order to meet these obligations. If the property which is not to be used in connection with the supply of gas in the territory here affected is hereafter sold or applied to a beneficial use in the purchaser's plant, the sale price or the value thereof may again be credited to surplus.

81—Municipal Regulation.

Applications were made for certain regulation by two different California cities which had attempted to transfer their jurisdiction over various utilities to the State Commission. Decision of the CALIFORNIA RAILROAD COMMISSION, requiring further legal procedure in one case, and accepting jurisdiction in the other. March, April, 1913.

In the first case, the city of Long Beach, at an election duly called and regularly held, voted to amend its charter by adding an article to provide that all the powers and jurisdiction named in the constitution, the Public Utilities Act, or any other California law, should be granted to the California Railroad Commission as far as concerned all common carriers operating within the city. The Commission holds that cities may not divest themselves of such jurisdiction by means of a charter amendment, but must pursue the complete scheme for presenting to the voters the question of the retention or giving up of powers over

utilities now vested in municipalities in the manner specified by the Legislature for this purpose.

In the second case, Covina city voted at an election held in the prescribed manner to transfer its jurisdiction over water corporations and gas corporations to the State Commission, and as the Water Company whose rates are in question also desired to come under the jurisdiction of the Commission, the decision of the Commission is in favor of assuming the jurisdiction, although this will leave the eight other classes of utilities specified in the act still under the control of the municipality.

65—Discrimination.

In the matter of the Application of Various Public Utilities for permission to charge less than published schedules of rates in certain classes of cases. Supplemental opinion and order of CALIFORNIA RAILROAD COMMISSION, ordering the filing of all proposed deviations with the Commission preliminary to their adoption by the utilities. April 19, 1913.

The Commission's order in the original application of the utilities in this case was given in some fullness in 3 RATE RESEARCH 5, and includes a brief summary of the practice of other commissions in allowing deviations from schedule rates. In that order the Commission expressed the opinion that so far as possible there should be no concessions from the published rates of public utilities, and ruled further that if any utility did not desire to deviate from its regular schedules it was entirely within its right to refuse any deviation; at the same time it allowed permissive authority to the utilities to make such concessions to four classes of cases, namely, federal and state governments including public institutions, fairs, etc., charity, and employees.

This supplemental order is now issued for the reason that in abolishing the deviations, the utilities may choose to increase the lower rate to the level of the higher rate in all cases, whereas at times it may be more reasonable to require the removal of discrimination by reducing the higher rate to the level of the lower.

The decision holds:

There are many cases wherein even an individual rate may constitute the proper charge for a class of service. An individual consumer may constitute a class because no other consumer is in a similar situation with reference to the utility in question. . . .

It appearing to the Commission that a possible construction of said order may empower the utilities to make substantial increases in their rates without justification; and

It further appearing to the Commission that where discrimination exists and there are two methods of removing the discrimination, one by the raising of the rates and the other by the lowering of

the rates, the Commission should determine which method should be pursued in each particular case in justice to the utility and the consumers involved;

It is hereby ordered that in compliance with the order heretofore rendered, the utilities involved shall file all of their deviations and indicate those which it is their desire to continue and the reasons therefor, and shall retain in effect both such deviations desired to be retained and the deviations which such utilities desire to eliminate, pending the determination by this Commission in each particular case as to the method of removing such discrimination. Where such rates have been established by contract, copies of the contracts shall be filed. . . .

REFERENCES

RATES

41—Cost of Service.

ELECTRIC RAILWAY COSTS, by JOHN B. SPARKS, *Electric Railway Journal*, 3 pages, June 14, 1913, p. 1061.

This paper suggests that all power costs be entirely separated from transportation expenses, for the purpose of making reliable comparisons of the relative economy of purchasing power from central stations, as against steam power or isolated plants, and presents actual operating results from three railways in this manner, with a table giving, in a final figure derived by addition of all the cost elements, the cost per unit of power delivered at the train, for direct current railways and single phase railways, and for terminal and trunk line operation. Such costs average from 1.664 cents to 1.285 per kilowatt-hour. Two other tables of operating costs are given, one of which shows comparison of steam and electric working, with results substantially favorable to electricity, the final item of the table, total operating cost per ton mile, being .085 for steam and .078 for electricity.

41—Cost of Service.

A TWO AND A HALF BILLION DOLLAR ARGUMENT FOR CENTRAL STATION SERVICE, by A. E. RICKARDS. *The Electric Journal*, 8 pages. June, 1913, p. 515.

This gives comparisons of electric service in manufacturing supplied by central stations, and by isolated plants, showing the vast and increasing investment throughout the country in plants which are growing in size and numbers mainly through developing and extending their power business. Various items are pointed out which contribute to the economic advantages of central station production as compared with isolated plant production, as for example, superior technical knowledge and experience in the electricity business of the central station manager, whereas the manager of the manufacturing concern is expert in his own specialty and not in electrical production; second, the power costs in a manufacturing business ordinarily represents about two per cent. of the total cost of manufacture, so there is a loss in efficiency in making a relatively large fixed investment in money or time, including salary of expert electrician, for this item; and third, the central station necessarily has a better load factor and diversity factor. Tables and curves of information of costs on the two methods of electrical supply are given.

41—Cost of Service.

Analysis of Motor Service and Heating Costs in a Jewelry Factory, *Electrical World*, 1¼ pages, June 21, 1913, p. 1369.

This reports briefly the conversion of a large jewelry factory in Massachusetts from isolated plant service to purchased central station power. A table is given of the motor equipment for the machines for the different processes in the manufacture, and a table of the lay-out of the heating system. Details of the fixed and operating costs are given, and items of saving indicated. Current was furnished at an average rate of 3 cents per kilowatt-hour.

54—Minimum Charge.

Opinion of Maryland Commission's Counsel on Minimum Charge Concession, *Electrical World*, June 21, 1913, p. 1353.

A customer of the Baltimore Consolidated Gas, Electric Light and Power Company protested against a charge of \$2.20 in addition to the sum paid for current actually consumed during a year, though it appears he received service under a contract prescribing a minimum charge of \$1 per month, and had consumed but \$9.80 worth of current. The company, to adjust the matter satisfactorily, offered the customer the privilege of buying an electric appliance on the purchase price of which it would credit the protested amount. The counsel's opinion says that the customer is liable for the sum in question, and that the offer of the company to remit the same on the purchase of an appliance is unjustifiable.

61—Character of Service.

Electricity in Button Manufacturing, illustrated article, *Electrical Review*, 5 pages, June 21, 1913, p. 1311.

Discusses detailed conditions in typical button manufacturing plants, and gives data from five such installations. Several advantages of motor drive apply specifically to these factories, an important one being uniformity of speed, resulting in improved quality and increased output of product.

61—Character of Service.

Electric Power for Quarries, Gravel Plants and Contract Work, abstract from the Report of the Committee on Electricity in Rural Districts, at the Meeting of the National Electric Light Association, Chicago, June 3-6. *Engineering News*, 1¼ pages, June 19, 1913, p. 1274.

This gives useful details of operating conditions, motors required, character of load, etc., for electric drive in stone quarries, sand and gravel plants, and excavating work. Data are given on an installation for digging an eight-mile section of a canal which will require about three years.

INVESTMENT AND RETURN**3—Investment and Return.**

Application of the PEOPLES WATER, LIGHT AND POWER Co., Mellen, Wisconsin, to Change Water Rates. Decision of the WISCONSIN RAILROAD COMMISSION Adjusting the Rates. Nov. 7, 1912. *Public Service Regulation*, 1½ pages. June, 1913, p. 326.

This is an application to change a flat rate of \$1.00 per month for water supply to 75 cents, and a minimum charge of 50 cents per month to 75 cents.

The decision gives detailed calculations of the cost of service, including cost of maintenance of meters, 12 per cent being taken as a proper allowance for interest, depreciation and taxes on the investment in meters; analysis of general expenses; and consumers costs, and a resulting figure of 50 cents per month of fixed charges per metered consumer is found. It is adjudged that to allow an additional 25 cents per month to cover the worth of the water alone seems entirely reasonable, and therefore a minimum charge of 75 cents per month is fixed. The flat rate is also placed at 75 cents as applied for. Meters are to be put in as rapidly as possible and in a very short time the present inequalities between flat rate and metered consumers will disappear, because there will be no flat rate consumers.

3—Investment and Return.

The Decision of the Wisconsin Courts Against the Milwaukee Company, editorial, *Electric Railway Journal*, $\frac{1}{2}$ page. June 21, 1913, p. 1101.

States that this decision by the Wisconsin Supreme Court (which sustains an order of the Railroad Commission requiring the Company to sell 13 street car tickets for 50 cents, though the city ordinance granting the franchise prescribed a maximum five-cent cash fare during the life of the franchise) adjudges in effect that the city of Milwaukee did not have authority to enter into a contract with the Milwaukee Electric Railway and Light Company fixing unchangeable rates of fare for a definite period, so that the agreement was void. The comment further claims that the company after having performed its part of the obligation for a number of years, (while it could have been charging higher rates under its former unmatured franchise,) has now been deprived of the consideration for which it reduced its rates and accepted the new franchise, namely, that the rates agreed to should not be again reduced during the term of franchise.

3—Investment and Return.

Complaint and Appeal of the TOLEDO RAILWAYS AND LIGHT CO., from an Ordinance of the Municipality of Toledo, Ohio, Reducing Gas Rates. Decision of OHIO PUBLIC SERVICE COMMISSION, Declaring the Rates Fixed to be Unjust and Unreasonable. May 22, 1913. *Public Service Regulation*. 1 page. June, 1913, p. 322.

The Commission made an investigation of the Company's business and a valuation of its property, the items of which are not reported in the decision, except that no franchise value other than the actual cost of obtaining the same, and no added value by reason of a monopoly or merger is allowed, and found that the existing rates, which the ordinance attempted to further reduce, were yielding the Company a return of only 2.952 per cent on the value of the property used and useful for the convenience of the public. The part of the ordinance referring to rates is therefore annulled, and the parts requiring that the Company supply, install and keep in repair without charge to consumers all meters, and shall collect a minimum charge of 25 cents per month, are ratified and confirmed by the Commission.

3—Investment and Return.

THE PROFITS OF A GREAT MANUFACTURING COMPANY CONTRASTED WITH THOSE OF RAILWAYS, Editorial, *Engineering and Contracting*, June 18, 1913, p. 675.

This compares the earnings of the General Electric Company, taken from its 21st Annual Report, with the general averages of American railways, showing that for the electric business the net earnings were nearly 9 per cent of the gross sales, being more than 32 per cent of the estimated plant investment,

and a profit, deducting the interest on the plant investment, of less than 8 per cent of the gross income. Treating the railroad figures similarly, and using the reasonable estimate of an average value of \$50,000 per mile, railways net earnings average about 7 per cent of the railway plant value, and a profit, deducting interest as before, of 9 per cent of the gross income. Therefore, while the profits expressed as a percentage of gross income are not widely different in the two cases, the net earnings expressed as a percentage of plant value are widely different, namely 32 per cent for the electric company and 7 per cent for the railroads. This claims that therefore the average steam railway has nothing to fear whichever way net earnings and profits are viewed, so long as proper comparisons are made between the railways and large manufacturing industries, banks, etc., and that the most rational basis of comparison is to express the profits as a percentage of gross income, always remembering that interest charges on the investment should be deducted from net earnings to deduce the true profit.

31—Valuation.

THE NATIONAL APPRAISAL, BY CLIFFORD THORN, Chairman Iowa Railroad Commission. Paper read at the Mississippi Valley States' Conference on Valuation. *Public Service Regulation*, 2¾ pages, June, 1913, p. 273, and WHO WILL REPRESENT THE PUBLIC, 1 page, by D. F. JURGENSEN, Engineer Minnesota Railroad and Warehouse Commission, p 276.

These urge co-operation and organization of all the state commissions in order to follow closely the work now beginning of the Interstate Commerce Commission in the appraisals of the property of all the railroads of the United States. It is pointed out that the railroads have already organized and formed a national committee for this purpose, and it is stated that it is essential that the state commissions, which, though in state matters performing somewhat the functions of a judicial tribunal, are in interstate matters naturally the advocates for the shippers and consumers of their various states, should likewise be prepared with the fullest information on the subject from the beginning, as they would be the only bodies naturally representing the public's side, and the only ones apt to challenge the valuations as too high, within the 30 days as provided in the act of Congress ordering the appraisals.

314—Overhead Charges.

Construction Expenses in the Minnesota Rate Decision, editorial, *Electric Railway Journal*, ½ page, June 21, 1913, p. 1101.

Interprets the rejection by the Supreme Court of the items of engineering, superintendence, legal expenses, contingencies and interest during construction as figured by the Master on the "railroad value" of the land—that obtained by the use of 3 taken as a multiplier—does not mean that the Court will not take cognizance of these when based on a proper land valuation as defined by the Court "fair average market value of similar land in the vicinity."

335—Issues of Stocks and Bonds.

SHOULD WE "PAY AS WE GO" FOR ROADS AND OTHER PUBLIC WORKS. Editorial, *Engineering and Contracting*, June 4, 1913, p. 621.

This discusses the regrettable opposition in some quarters to the issue of long term bonds (the State of Pennsylvania has now proposed a \$50,000,000 issue) for good roads. The arguments which are put forward against it are shown to be both ethically and economically unsound, for so long as repairs and replacements are paid for by current taxes, the equitable and just apportionment of the cost is provided exactly by this means, for the ones receiving the benefits

are in effect paying interest on the investment. This is another application of the same economic principle on which railroads refund their bonds on maturity. A convincing statement on the same question, which pertains equally to the financing of electric light plants and other properties, is given in abstract in 2 RATE RESEARCH 123.

PUBLIC SERVICE REGULATION

224—Rate Regulation.

CLEVELAND RATE ARBITRATION, *Public Service Regulation*, 1/3 page. June, 1913, p. 309.

A board of arbitration has been appointed in accordance with the provisions of the city ordinance governing the street railway operation of Cleveland, to settle the questions now at issue between the City and the Railway Company of increasing the allowances for operating expenses and for maintenance, renewals and depreciation. Operating expenses have risen with increased wages of conductors and motormen. One of the matters to be arbitrated is how \$800,000 value of abandoned steam plants should be charged off, as the Company made a contract last year with the Cleveland Electric Illuminating Company for the purchase of power.

GENERAL

613.4—Distribution Economies.

A Plea for Higher Pressure in Distribution, by J. E. Bullard. *The Gas Age*, 2½ pages, June 16, 1913, p. 603.

This sketches the development of the electric business which is only 31 years old, and of the gas business which is 97 years old, and shows that the investment in electrical plants is in round numbers a billion and a half dollars, while that in gas plants is only one billion. The greatest factor in this enormous extension and growth in electricity is stated to be the improvement in distribution systems, the possibility of supplying an ever larger region from one central generating plant, and of serving any given territory with increased economy, because of the development in high tension transmission. The first electrical distribution was at about 50 volts, now transmission between substations varies from 13,000 to 140,000 volts, and the problems which have been met and solved to bring about this result have been of great difficulty. It is suggested that the gas industry must evolve an analogous system of economical centralized supply and distribution at high pressure if it is to compete with electricity in the future.

616.1—Street Lighting.

STREET LIGHTING OF GREATER NEW YORK, by C. F. LACOMBE. Address delivered before a joint meeting of the Municipal Art Society and the New York section of the Illuminating Engineering Society, Feb. 21, 1913. *Transactions of the Illuminating Engineering Society*, 14 pages. May, 1913, p. 199, and *Electric Journal*, 19 pages, June, 1913, p. 538.

This article gives with many excellent illustrations, including interesting night photographs, and diagrams, the development of street lighting in Greater New York City, the satisfactory progress that has been made in securing artistic and efficient illumination, with the study of details of lighting units and description of the broad and systematic plan that has been adopted, and which promises to make New York the best and most beautifully lighted city in the world.

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CONTENTS	Page
COMMISSION DECISIONS	211
Massachusetts	211
New Jersey	212
California	213
Connecticut	216
Nevada	218
Maryland	219
NEW UTILITIES BILLS	220
COMMISSION REPORTS	220
New Mexico	220
REFERENCES	220
Rates	220
Investment and Return	221
Public Service Regulation	222
General	224

Rate Research

Vol. 3.

CHICAGO, JULY 2, 1913

No. 14

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COMMISSION DECISIONS

MASSACHUSETTS

614—Heating and Cooking.

Application of the MARBLEHEAD, MASS., MUNICIPAL LIGHT PLANT, for Permission to Reduce Electric Heating Rates. Decision of the MASSACHUSETTS BOARD OF GAS AND ELECTRIC LIGHT COMMISSIONERS, Granting the Application. June 7, 1913.

This is a similar case to the petition of the Westfield Plant, given in 3 RATE RESEARCH 199, and it is stated that the present decision is based on the same considerations and principles as there described.

The rates which have prevailed heretofore are: for lighting, 15 cents per kilowatt-hour, with a discount of 20 per cent for prompt payment, or 12 cents net, and for heating a rate ranging from 10 cents per kilowatt-hour for a consumption of 50 kilowatt-hours per month to 4 cents per kilowatt-hour for 2,000 kilowatt-hours per month. The new rate authorized is for heating, and is 5 cents per kilowatt-hour, which is less than cost as defined by Sec. 22, Chap. 34, Revised Laws of Massachusetts. (See 3 RATE RESEARCH 199).

The Commission says:

45—Value of Service.

The heating rate in question is urged by the municipal light board after experience with a schedule of higher prices has demonstrated that they were not sufficiently advantageous to secure the business. The price at which electricity can be used for heating is not necessarily, or under all conditions, governed by the apparent cost of supplying it, but depends rather upon its value to the customer. It may, moreover, under some conditions, be furnished for this purpose at less than what appears to be the average cost, without actual loss to the town engaged in the

EDITORIAL NOTE.—All indented matter is direct quotation.

supply. The propriety of trying to obtain this class of business must therefore largely involve at the outset considerations of commercial expediency. If the endeavor results in materially increasing output without proportionately increasing costs, there will be some commercial justification for undertaking the experiment, and to a degree the interests of the taxpayers and customers generally may be promoted rather than injured.

NEW JERSEY

523.1—Connected Load Basis.

Complaint against the PUBLIC SERVICE ELECTRIC COMPANY, Newark, N. J., Alleging Unjust and Unreasonable Practice in Calculating Connected Load. Decision of the NEW JERSEY BOARD OF PUBLIC UTILITY COMMISSIONERS, Prescribing Correct Practice. May 19, 1913.

This is a complaint by the Wheatena Company and the Communipaw Steel Company, two manufacturing concerns, against the Electric Company from which they purchase current, that the method of computing maximum demand, upon which the first step of the rate is based, is incorrect. The Wheatena Company has connected to the supply lines of the Electric Company 1 30-horse power A. C. motor, 1 2-horse power A. C. motor, and 1 10½ ampere, 220-volt heater, rated at 3½ horse power. The 30-horse power motor was used to drive a 20-kilowatt, direct current generator, which in turn supplied power to a number of small direct current motors, aggregating 45 horse power. The Electric Company computed the connected load as the sum of the 2-horse power A. C. motor, the 3-horse power heater, and the 45-horse power D. C. motors. In the similar case of the Communipaw Steel Company three motors were connected with the Electric Company's mains, 1 25-horse power and 1 15-horse power, used to drive machinery, and 1 25-horse power motor, used for driving a 220-volt generator, which in turn furnished direct current to a number of small motors aggregating 101 horse power. Here the Electric Company rated the connected load similarly, as 141.8 horse power.

After investigation, including testimony by the Chief Inspector for the Commission, and by expert witnesses for the manufacturing companies, the Commission finds that the Company's method is incorrect, as expressed in the following clause in its contracts, "For the purpose of this agreement the customers' Maximum Demand, upon which the first step is based, shall be determined from the full rated capacity of the connected load, according to the following table of percentages."

The further findings and order follow:

(3) That the existing practice of the Public Service Electric Company of calculating the "connected load" under said clause is by

taking the aggregate capacity of motors supplied by their own electric mains where these motors drive machinery; and where motors are in turn used to drive generators which in turn supply current to a number of individual motors, by taking the aggregate capacity of the small motors connected to the machinery.

(4) That the existing practice of the Public Service Electric Company, as above set out, in calculating the "connected load" under said clause, is unjust and unreasonable.

(5) That in just and reasonable practice the connected load referred to in said clause is in all cases the aggregate capacity of all devices *electrically* connected to the supply mains, and consuming the electricity supplied by the electric company.

The Board of Public Utility Commissioners, therefore, hereby further fixes as a just and reasonable practice to be observed and followed by the Public Service Electric Company . . . under all contracts . . . now in force, or hereafter entered into, that of treating, in all cases, the connected load as the aggregate capacity of all devices *electrically* connected to the supply mains, and consuming the electricity supplied by said Public Service Electric Company; and

Hereby orders said company to observe and follow the practice so hereby fixed.

CALIFORNIA

228.1—Approval of Franchises.

Application of the SOUTHERN SIERRAS POWER COMPANY for Determination as to whether it must obtain Certificate of Public Convenience and Necessity, or Permit, to Exercise Franchise to Construct Extension to Electrical Distribution System. Decision of the CALIFORNIA RAILROAD COMMISSION, Granting a Permit, April 18, 1913.

The Southern Sierras Power Company relied on a franchise obtained from San Bernardino County prior to the effective date of the Public Utilities Act, granting the right to construct and operate for fifty years an electric transmission line on all the public roads in the county outside of incorporated cities and towns. The cost of the company's entire system to date has been some three million dollars, whereof some four or five hundred thousand have been expended in San Bernardino County completing 20 miles of lines under this franchise. The Southern California Edison Company filed a complaint with this Commission, objecting to the construction in question, a six mile extension to serve the Lytle Creek Water and Improvement Company, which was then being served by the Edison Company, under a contract about to expire. The Southern Sierras Company had entered into a contract with the Water and Improve-

ment Company to furnish its electric supply at a rate below that of the Edison Company.

The Commission finds that the Southern Sierras Company had begun actual construction work and prosecuted it to the extent of some ten thousand dollars of expenditure in San Bernardino County under the franchise in question, prior to the effective date of the Public Utilities Act, and that therefore it comes within the class specified therein for which it is provided, Sec. 50 (b).

When the Commission shall find, after hearing, that a public utility has heretofore begun actual construction work and is prosecuting such work, in good faith, uninterruptedly and with reasonable diligence in proportion to the magnitude of the undertaking, under any franchise or permit heretofore granted but not heretofore actually exercised, such public utility may proceed, under such rules and regulations as the Commission may prescribe, to the completion of such work, and may, after such completion, exercise such right or privilege.

3—

Investment and Return

Application of LIVERMORE WATER AND POWER COMPANY to Sell and of Pacific Gas and Electric Company to Purchase all the Property of the Livermore Company. Decision of the CALIFORNIA RAILROAD COMMISSION Granting the Application Conditionally, April 15, 1913. The present maximum rate for electricity for lighting is 10 cents per kilowatt-hour, and the Pacific Company announces that if the purchase is approved, it will put in a maximum rate of 8 cents, and will make all the necessary extensions and improvements in the territory, which the present small company is unable to do.

The only point of the application not approved by the Commission is the request that part of the purchase price is to be 1,400 shares of the common stock of the Pacific Company issued at 65 per cent of its par value. The Commission has refused to authorize any issue of stock at less than 80 per cent, but allows the purchase of the property in this case, the consolidation from every other point of view being of advantage to the public, on the condition that in case of a rate fixing inquiry or any other investigation in which the public interest is concerned, at least \$80 will be estimated by the Commission as having been received for each share of the stock. A discussion of the ideal method for financing and capitalizing public utilities is given, including the following:

An ideal healthy utility, it seems to me, is one that has borrowed not beyond 75 per cent. of the value of its property and is paying thereon as bond interest 5 per cent., and has secured the remaining 25 per cent from sales of stock at par. Under such conditions if the Commission should allow, as it did in the Palo Alto gas case, 8 per cent. on the entire valuation of the property, and the property

was valued at say \$100,000, then there would be a net earning of \$8,000 per year, \$3,750 of which would go to the amply secured bondholders, leaving \$4,250 annually to be paid on the \$25,000 outstanding stock which seems to me would be a pretty good dividend for the man who actually put his money in and took the risk. . . . The suggestion I have thrown out seems to me to be not only reasonable but very advisable from the view point of the investor, and the fact that the stockholder under such circumstances earns a large rate of interest is not and should not be any of the business of the public. What the public has a right to look to is the property which is being devoted to its service, and if 8 per cent. is a reasonable amount for such property to earn, or any other greater or less per cent., the public is not interested in the division thereof. . . .

I am not at all blind to the fact that the right to serve this territory is considered by the Pacific Gas and Electric Company as valuable to it; a value, however, which it cannot capitalize and from which it can reap no benefit other than that benefit which comes to it by finding an enlarged market for its power, and the further fact that if it adequately and sufficiently serves the public in the way that the public is entitled to be served it may reasonably expect to hold this as an exclusive field.

31—**Valuation.**

In the Matter of Ascertaining the Value of the Property of the Stockton Terminal and Eastern Railroad Company Within the State of California—Decision of the CALIFORNIA RAILROAD COMMISSION. April 30, 1913.

This is the first of the Railroad Valuation cases brought upon the Commission's initiative in the task of determining the total valuation of all the railroad properties in California. The plan and method to be pursued are indicated as follows:

In making findings in this case, I shall not make a general finding as to the value of the property of this railroad. Value is an elusive term, and what may properly be a value for one purpose may be entirely improper as a value for another purpose. I shall rather find specific facts bearing on the question of value, as shown by the evidence in this case, leaving it to the future to use these facts or such thereof as may be material, in any proceeding in which these facts may become relevant. The fact that a finding is made on a particular matter is not to be taken as expressing the view of this Commission that that particular matter should enter into a consideration of the value of the property of this railroad company for any particular purpose. . . . I shall content myself with finding the facts with reference to different elements which, properly or improperly, have from time to time been considered by the courts in cases in which the value of the property of a railroad company has been material.

In making the findings of fact in this case, I shall consider the following matters:

1. Organization, construction and operation.
2. Stocks and bonds.
3. Revenues and expenses
4. Original cost, as defined.
5. Reproduction value, as defined.
6. Present value, as defined.

311.1—Original Cost.

The term "original cost," as used in this opinion, means the actual expenditures, in cash or its equivalent, by the railroad company for the physical elements entering into its operative property, . . . to which are added overhead expenditures for engineering, law, interest and commissions and similar items.

311.2—Reproduction Value.

The term "reproduction value," as used in this opinion, means the estimated cost in cash of acquiring the operative right of way and other real estate and of reproducing in the condition in which it was acquired the other operative physical property of the Stockton Terminal and Eastern Railroad Company, . . . to which are added overhead expenditures for engineering, law, interest and commissions and similar items. . .

311.3—Present Value.

The term "present value," as used in this opinion, means the "reproduction value" less the diminution in the value of the physical elements of the property, due to use, age, obsolescence and inadequacy. While this value may, under certain circumstances, include appreciation as well as depreciation, no appreciation is found in this case. The term "depreciated reproduction value" may be used as alternative for the term "present value." It should be distinctly understood that when this Commission in this opinion and the engineering department in its estimates uses the term "present value," it is not intended to establish the ultimate fact of present value, as that term is ordinarily used, but rather the "depreciated reproduction value" of the physical elements of the operative property. . .

CONNECTICUT.

3—Investment and Return.

Complaint against the HOUSATONIC POWER COMPANY, New Haven, of Unsatisfactory Service and Unreasonable Rates. Decision of the CONNECTICUT PUBLIC UTILITIES COMMISSION Ordering Improvement in Service. April 17, 1913.

This is a complaint by ten customers in the Town of Guilford which is supplied by the company, that the electric lights, by reason of low voltage, leakage, insufficient power, and other plant and maintenance

defects, were dim, at times flickering and flashing, and frequently went out; that the Company failed because of inadequate plant and equipment, to supply current for moderate power purposes on request, and that the rates charged were unreasonable for the quality of the service rendered.

The Commission on inspection found that with the exception of occasional instances of recent construction, the lines were very old, insulation of wires generally defective or entirely lacking, that there was overloading, primary transmission being at 2300 volts, and swaying contacts in trees, which during damp weather, rain or wind storms, by tree grounding would result in considerable leakage and loss of electric energy, besides danger to the public.

The Commission found that by reason of these conditions the electrical service was inadequate and unsatisfactory, and issued a general order to the company to put into operation before the first day of September, 1913, such improvements to its generating, transmission, transforming and distributing equipment as may be necessary to supply an adequate and reliable electric lighting and power service in the town of Guilford, and to eliminate all avoidable dangerous conditions. The rates are pronounced to be excessive for the existing service, but not necessarily unfair or unreasonable for proper service, and therefore the Commission makes no order pertaining to rates.

77—

Safety of Service

In re Accident at Suffield, Conn., due to Improper Proximity of Wires of NORTHERN CONNECTICUT LIGHT & POWER COMPANY and SOUTHERN NEW ENGLAND TELEPHONE COMPANY. Decision of the CONNECTICUT PUBLIC UTILITIES COMMISSION Recommending Safeguarding Measures. February 19, 1913.

In this case telephone wires became charged from contact, through a guy wire improperly hung, with the high tension wires of the Power Company, and as a result a woman in a near by house sustained such burns of her hands as necessitated amputation.

The Commission on investigation found that the company was reconstructing its lines, and meanwhile using parts of the old lines which are now inadequate.

The Decision says:

In consequence of the rapid transition which the electrical art is undergoing, particularly in the commercial transmission for light and power, many lines of poles and wires in this State (and probably other States) which were only intended for comparatively low tension service, have been pressed into use for handling electrical currents of much higher potential than they were originally constructed for.

Excellent standards of line construction have been evolved by The National Electric Light Association and by progressive electrical interests, to replace the old and inadequate methods, and, though this replacement is going on, there are many instances where a part of the electrical transmission system is modern and the rest old and more or less dangerous. It is such a condition as this that we find at Suffield.

The Commission recommends, (sending out a notice to this effect to all the electric utilities in the State), thorough, systematic, semi-annual inspections of all overhead lines, devices and appliances, and a general inspection after every heavy storm by a competent person, who will make a report of every apparently dangerous condition, and file a duplicate of this report with the Commission within ten days after the inspection, and that in all cases where two companies occupy the same poles the construction and arrangements shall be substantially according to the rules prescribed by the National Electric Light Association.

NEVADA

3—Investment and Return.

Complaint of the City of Ely (pop. 2,055) against the ELY LIGHT AND POWER COMPANY Alleging Unreasonable, Unjust and Discriminatory Rates. Decision of the NEVADA PUBLIC SERVICE COMMISSION, Reducing the Rates. June 7, 1913.

The rates complained of were of two forms, a demand rate called "A," and a flat meter rate called "B." The "A" rate is:

Rate—

Demand Charge—

75 cents per month for each lamp installed, plus an

Energy Charge—

8 cents per kilowatt-hour

The "B" rate is:

Rate—

20 cents per kilowatt-hour.

Minimum Charge—

\$2.00 per month.

514.1—Hopkinson Rate.

As to the first rate, the company claimed that the charge of 75 cents per month per lamp is justified by the company's "readiness to serve," the number of lamps installed being taken to represent the customer's demand. In the practical working out of this system of charging it was shown that one consumer who had 34 lamps installed but had used only 413 kilowatt-hours, had a monthly bill \$14.10 higher than that of another consumer (a hotel) using 415 kilowatt-hours, but having only 15 lamps. The Commission ruling that a method of charging which produced such results worked injustice, therefore eliminated the "A" rate, and approved a block meter rate.

31—Valuation.

A valuation of the plant was made, the claims of the company for values for "good will," "going concern" and for its contract for water power being rejected, also the cost of a large new plant which is not at present in use and which had been built in the expectation of a very much greater growth of the community than it has attained, or now has any prospect of reaching, is not allowed to be included in valuation, the Commission saying:

The manager of the respondent company frankly admitted in his testimony that the construction of the new plant was a mistake on the part of the company. . . .

Clearly it would be unjust to require the people of a small city like Ely to pay in their electric-light charges for the mistake of the company in building an unnecessarily large and expensive plant.

The life of mining camps, such as the town in question was discussed and 5 per cent allowed for a depreciation fund; the company's claim that it should be allowed to earn 12 per cent on its investment is considered, but not deemed compelling in this case, the Company's charges are pronounced to be high by comparison with all other electric rates in the State, and its service found to be generally good.

The final order then establishes the following charges:

514.3—Wright Demand Rate.**Rate—**

15 cents per kilowatt hour for first	50 kilowatt-hours per month.
12.5 cents per kilowatt-hour for next	200 kilowatt-hours per month.
10 cents per kilowatt-hour for excess over	250 kilowatt-hours per month.

Minimum Charge—

\$1.50 per month.

EDITORIAL NOTE: This decision appears on its face to be against the demand method of charging, and bring out very clearly the difficulties usually encountered by the Hopkinson method of charge with small consumers. There is no doubt that the Wright demand form of rate gives much more satisfaction in charging small or general lighting consumers than the Hopkinson type, although theoretically the Hopkinson is the better type of rate.

MARYLAND**72—Rate Schedules.**

The general lighting rate schedule of the CONSOLIDATED GAS, ELECTRIC LIGHT AND POWER COMPANY of Baltimore, Md., given in 3 RATE RESEARCH 199, as prescribed by the Maryland Public Service Commission is now amended by a supplemental order of the Commission relating to the minimum charge, which through an inadvertance was specified as \$1 per month in the former order.

The ruling is:

The opinion of the Commission is that the minimum charge should be a yearly minimum and not a monthly minimum. The proper proportion should be charged monthly, however, and an adjustment made at the end of the year.

It is, therefore, . . . Ordered, That Supplement No. 5. . . be amended . . . by inserting after the words "Minimum Charge One Dollar (\$1.00) Per Month," the following words: "Provided that if on any first day of May or at any established adjustment period it shall appear that a customer has, by reason of said charge, paid or become liable to pay during the year immediately preceding an amount exceeding the sum of twelve dollars (\$12.00) per meter, the Company shall refund such excess."

NEW UTILITIES BILLS

261—Public Service Bills.

As we go to press we understand that Governor Dunne has signed the Utilities Bill recently passed by the Illinois Legislature, and also that the Pennsylvania Legislature has passed a Utilities Bill for that State. Both of these laws will be noticed in a later RATE RESEARCH.

COMMISSION REPORTS

252—Commission Annual Reports.

First Annual Report of the STATE CORPORATION COMMISSION OF NEW MEXICO, January 16, 1912, to December 31, 1912. 534 pages.

The regulations by this Commission for its first year of service have been exclusively of railroad, express, telephone and telegraph companies, as its jurisdiction does not at present extend to water and light companies. The opinion of the Attorney General of New Mexico deciding this point is given on p. 134 of the report, with the statement that the legislature will probably confer such jurisdiction when its attention is called to the matter.

REFERENCES

RATES

61—Character of Service.

ELECTRICITY IN BOOK-BINDING PLANTS, illustrated article, *Electrical Review*, 5 pages. June 28, 1913, p. 1359.

This discusses power requirements of book-binding machinery, and the advantages of motor drive which has come to be accepted as standard practice for this business because of the economy, flexibility and cleanliness of this system of drive. Operating data on six different plants are given.

61—Character of Service.

OPERATING CHARACTERISTICS OF THE MODERN PASSENGER ELEVATOR, by E. F. TWEEDY, General Electric Review, 11 pages, July, 1913, p. 474.

The first part of this article outlines the development of all the successful types of passenger elevator, viz., steam, hydraulic (water-balance, vertical and horizontal cylinder), electric (single and variable speed), and drum and traction suspensions. The merits and demerits of each type of drive and suspension are discussed. Curves are included which show the effect upon power consumption of different counterweighting, the schedule relation between number of stories and linear speed of travel, and the difference in the time-characteristic of two classes of traffic. A two-page tabulation gives complete data of representative installations. The second part of the article explains the method of arriving at the number and size of elevators which are necessary to fulfill the given requirements of a proposed building, a curve chart being used, which practically eliminates all computation. In conclusion, the construction and operation of the automatic signal-lamp system, so commonly used, are described in detail.

61—Character of Service.

ELECTRICAL REQUIREMENTS OF CERTAIN MACHINES IN THE RUBBER INDUSTRY, by C. A. KELSEY. Illustrated article. *Proceedings of the American Institute of Electrical Engineers*, 6 pages. July, 1913, p. 1598.

This paper outlines the principal operations carried on in a rubber factory, and gives some figures on the corresponding power requirements, with reasons for selecting the different types of motors, and methods of obtaining adjustable speed operation which is a factor productive of economies in this manufacture, with desirable features to be embodied in the control.

INVESTMENT AND RETURN

3—Investment and Return.

INVESTMENT RATIO AND OPERATING RATIO, by RENZO NORSO. *Electric Traction*, 2 pages, May, 1913, p. 265.

This is a discussion of a useful method of determining and representing graphically the return on investment as obtained by combined consideration of the investment ratio, (ratio of operating revenue to investment), and operating ratio (ratio of operating expenses to operating revenue). Curves, and a diagram of logarithmic lines, show the computations of percentage rates of return for five classes of properties, electric elevated and subway railways, electric surface roads, interurban lines, etc., from data supplied in the last United States Census Report (1907). The formula showing the relationship of the ratios is a simple one, namely, $R = I \times (100 - O)$; where R equals return, I, investment

ratio, and O, operating ratio (all in per cent.). By plotting such curves, due care being used that the terms "investment," and "operating expenses" comprise exactly the same items in each case, financial conditions for different companies, or for the same company for different years can be shown at a glance.

31—Valuation.

VALUATION OF THE SEVERAL CLASSES OF PROPERTY OF COMMON CARRIERS, Report of the Committee on Interstate Commerce of the United States Senate. 246 pages.

This is the Senate Committee report presented by Senator La Follette to accompany the bill providing for the valuation of the property of the railroads, which became a law March 1, 1913. It contains a discussion of the different bases for ascertaining the fair value which are recommended, (1) Original Cost to Date; (2) Cost of Reproduction New; (3) Cost of Reproduction less Depreciation; (4) Other Values and Elements of Value—That is, Intangible Values. It also gives in full the hearings before the Senate Committee, including the testimony and suggestions of Frank Trumbell, Chairman of the Board of Directors of the Chesapeake and Ohio Railway Co., and the Missouri, Kansas and Texas Railway Co., and Director in other companies; of the Presidents of the Delaware and Hudson Co., and of the Wabash Railroad, and testimony of other expert witnesses, the whole pamphlet furnishing interesting data on the problem of valuation. An index of three pages is subjoined.

313—Prices.

MAPS PUBLISHED BY THE UNITED STATES GOVERNMENT, for sale by the Superintendent of Documents, Washington, D. C. Pamphlet, 23 pages.

An alphabetical price list of all the maps published by the government, covering every portion of the United States and its possessions, post routes, rural routes, rivers, forests, reclamation projects, mining districts, etc., etc.

39—General Investment and Return Information.

STATISTICS OF THE COAL MINING INDUSTRY IN THE UNITED STATES. Bulletin of the Bureau of the Census, Department of Commerce. Mining, 1910. 55 pages.

This bulletin is a compilation of complete operating and financial statistics of the industry of coal mining in the United States for the year 1909, as collected by the thirteenth census. Maps are given showing coal distribution and production, and tables of information and of summaries of conditions with explanatory text and definitions which aid in making comparisons of capital and expenses as reported in the returns of different operators, and show the total extent and the progress of the industry. Among the details of operation given are tables, p. 19 and p. 53, of purchased electric power, the total number of such motors being 872, with a horsepower of 26,704.

PUBLIC SERVICE REGULATION**268—Public Service Laws.**

PROVISIONS OF MASSACHUSETTS PUBLIC SERVICE COMMISSION MEASURE, *Electric Railway Journal*, $\frac{1}{2}$ page. June 28, 1913, p. 1172.

This is a brief summary of the main features of the new law changing the Massachusetts Railroad Commission to the Public Service Commission, and expanding its powers. Jurisdiction over gas and electric companies is still retained by the Board of Gas and Electric Light Commissioners.

112—Franchises.

ADVERTISING FRANCHISES IN NEW YORK CITY, Editorial, *Engineering News*, June 26, 1913, p. 1335.

A report of the Bureau of Franchises, New York City, of which Mr. Harry P. Nichols is chief, contains some interesting information. A generation ago, when public franchises were a subject for barter and sale between boards of aldermen and promoters, one of the measures adopted to safeguard the people's interest was requiring publicity by advertisement for a certain period before the franchise could be granted. At present this sometimes results, in cases of minor and unimportant grants of such rights, in the legal expenses of obtaining them becoming prohibitive. For instance, a railway on Staten Island obtained franchises for four short sections of tracks, and the cost of publication alone amounted to nearly \$4 per foot of track laid. The comment is made that much so-called "legal advertising" is unnecessary, not of benefit to the public, as the laws requiring it originally contemplated, but merely furnishing revenue to various political newspapers.

2—Public Service Regulation.

LEGISLATION AFFECTING PUBLIC UTILITIES, by H. V. BOZELL. Paper presented at the Second Annual Convention of the Gas, Electric and Street Railway Association of Oklahoma, May 6-8, 1913. *Southwestern Electrician*, 2¾ pages. May, 1913, p. 15.

This is a general review of the theory and practice of governmental regulation of public utilities, with the causes which have produced unsatisfactory relations between the companies and the public in the past, and made conditions which have led to unfair legislation and unsound decisions in the first attempts at public regulation. The writer advocates the policy of co-operation, frankness and full discussion of business principles and requirements, on the part of utilities towards state commissions which have come to stay, and are usually composed of men who come to their position from active business lives, and are willing to be fair minded in the performance of their difficult duties. Some practical suggestions are made of points of improvement in present laws which utilities should work for, one being commission control over all municipal plants, and another the securing of due recognition of the risks of the business in the past, and of early losses, in fixing present rates of return, so that capital will be attracted for future developments. A brief sketch of the Oklahoma law is included, with mention of some of its defects, as for instance failure to provide for prevention of competition by a second utility where one is giving excellent service.

2—Public Service Regulation.

THE FUNCTIONS OF RESEARCH IN THE REGULATION OF NATURAL MONOPOLIES, by EDWARD B. ROSA. *Science*, 14 pages. April 18, 1913, p. 579.

This is the retiring presidential address before the Philosophical Society of Washington, D. C., and gives a broad minded, impartial and comprehensive view of present day regulation of utilities, showing that the work being done by Commissions both State and National, is the best and most promising form of governmental control of public service companies yet devised, and a great advance over the former method of direct legislation and law suits. It is seen that on any sound economic consideration, public service utilities are natural monopolies, and that in the last analysis the only alternative to government regulation is government ownership.

Many details of electrical, gas, railroad, etc., conditions are discussed which demand disinterested, scientific investigation and research to ensure the fair and effective handling of the questions that arise between the companies and the public, and to promote the progress of the utilities.

The adoption of uniform accounting which has been prescribed by the Commissions is an indispensable step in the working out of the ideal intelligent and fair regulation. The benefits of such regulation to the utility are as great as to the public. The company is saved from unfair and hostile local legislation, which often forces resort to the courts, always an expensive and often unsatisfactory experience. The business is more stable, customers are better served and better satisfied, the credit of the company is often improved, new stock sells more readily and at higher prices, as the public knows the condition of the business and there is less risk to the investor. Stock manipulation is prevented, and those who profit by that process are the only ones to suffer. With the utility companies under the control of business-like state commissions, the utilities are taken out of local politics and the possibility of pure municipal government in America is enormously enhanced.

224—Rate Regulation.

DECISION OF THE BOARD OF ARBITRATION IN THE CLEVELAND CASE, *Electric Railway Journal*, 3½ pages. June 28, 1913, p. 1159 and p. 1172.

This gives the full text of the decision of the board of arbitration, mentioned in 3 RATE RESEARCH 208, which has allowed the company an increase for operating expenses of .6 cents per car mile, but does not change the present allowance for maintenance, renewal or depreciation; adjudges that the present deficits, which it states are more properly called over-expenditures, in the operating fund, and in maintenance, renewal and depreciation fund, shall be wiped out by transferring from the interest fund the necessary amounts, or, as an alternative measure if the City Council prefers, by the raising of the allowance for the operating fund, and for the maintenance, renewal and depreciation fund sufficiently to balance the said over-expenditures by February 28, 1914, but provides that these measures are to be considered as emergency expedients, and not to be regarded as precedents. The charges due to the scrapping of the Company's power equipment, because of its change to purchased power, are to be charged now to the maintenance, renewal and depreciation fund, and not spread out over the entire period of the contract with the Cleveland Electric Illuminating Company for power.

GENERAL

199—General History of Utilities.

THE MANUFACTURE OF WATER GAS, by E. C. JONES, *Journal of Electricity, Power and Gas*, 5 pages. June 21, 1913, p. 569.

This gives a historical sketch, and a brief outline of the present development in the processes, of the commercial production of water gas. Attention is called to it here for the reason that it is deemed desirable that men engaged in the electrical business should be familiar with the general features, and comparative value of the product, of a great competitive service.

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CONTENTS		Page
COMMISSION DECISIONS		227
California		227
New York (1st D.)		232
Wisconsin		233
New Jersey		234
REPORTS TO COMMISSIONS		235
Indiana		235
REFERENCES		236
Rates		236
Investment and Return		237
Public Service Regulation		238
Municipalities		239
General		240

Rate Research

Vol. 3.

CHICAGO, JULY 9, 1913

No. 15

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COMMISSION DECISIONS

CALIFORNIA

132—Protection from Competition.

Application of ORO ELECTRIC CORPORATION for a Certificate of Public Convenience and Necessity to Exercise Franchises to Supply Electricity in the City of Stockton, and in Portions of the County of San Joaquin. Decision of the CALIFORNIA RAILROAD COMMISSION, Granting the Application in Part. April 29, 1913.

The Oro Electric Corporation in applying for permission to exercise franchises which it has obtained from the city of Stockton and from the county of San Joaquin, which territories are now served by the Western States Gas and Electric Company, offered to sell current at figures just slightly below those of the prior company. The Commission found on investigation that in one part of the territory there is considerable room for additional service, and therefore granted the application as to that region, but for the greater extent of the territory in question, including the city of Stockton, adequate service is supplied by the existing company, and as to that, the application is denied.

Additional significant points considered and forming the main grounds of the decision are:

12—Protection of the Public.

The Railroad Commission is given the right to establish the rates of all utilities in territory over which the Commission has jurisdiction. The result will be, that while the utilities will be allowed a just compensation of the value of their property used and useful for the public purpose, they can not continue to expect the public to pay to them rates high enough to yield unreasonably high returns on the property.

132—Protection from Competition.

As the right to the former high returns has, in effect, been taken away, it is only fair that the utilities shall receive a degree of protection from possible competition, in case they are doing their full duty, so that what they lose in the way of possible unreasonably high

returns they shall, in a measure, gain in greater security to their investment. This principle, however, applies only to such utilities as are doing their full duty to the public. The protection to the investment of a utility which is doing its full duty to the public is demanded, not merely as a matter of fairness, but also as a matter of common sense. . .

Under this new state policy, competition between public utilities is not of itself necessarily a good thing. Whether or not it is a good thing depends upon the results which flow from it in each particular case. If just as good results can be secured by regulation and supervision under state authority of an existing utility which is a natural monopoly, so that the rates and service enjoyed by the public are as good as they reasonably could be under normal competition, the consuming public has nothing to gain by competition, while that portion of the public which invested its funds in the securities of an existing utility may have much to lose by a competitive condition which, while not helpful to the consuming public, can be extremely hurtful to the investing public, and particularly discouraging to persons who are proposing to invest their money in the development of new utilities in this State in sections thereof where there are no existing utilities of the same character and where they are imperatively demanded for the development of the State.

132.1—Natural Monopolies.

This aspect of the public utility question must not be confused with trust regulation as it is by some persons who do not make the distinction between a natural monopoly such as a telephone, for example, and an ordinary commercial trust. The proponents of the theory that trusts shall be controlled by competition, as well as those advocating control by regulation, all agree that better control of a natural monopoly, with which competition under ordinary conditions necessarily means duplication, can be had by adequate and efficient regulation than by unrestricted competition.

132.2—Fair Rates and Efficient Service.

While this policy is new in this State, it is the accepted policy in most of the states of the east and middle west, which have adopted the policy of effective state regulation of public utilities. This difference, however, exists, in the method of working out this policy as between California on the one hand and these other states on the other—in the other states the commissions have been very much disinclined to permit new utilities to enter a field already served by another utility of like character, even if that utility has not done its duty to the public. In such a case the other commissions largely give to the existing utility its day of repentance and permit it to meet the improved rates or service of the newcomer, thereby discouraging the development of new enterprises. On the other hand,

the California Commission, unless particular circumstances call for a different method of handling the problem, looks to the existing utility as of the day when the newcomer knocks at the door. If the existing utility is at that time found not to be doing its duty to the public, the newcomer is permitted to enter. While this policy may result in the duplication of properties in some few cases, the general effect thereof will be extremely salutary for the reason, first, that the existing utilities will be put on their good behavior all the time, and not merely when they are expecting competition, and, secondly, that persons proposing to invest their money in public utilities in California may know that if they find territory in which there is no such public utility, or territory which is being served but in which the existing utility is not doing its duty to the public, this Commission will permit the new utility to proceed. In this way, persons proposing to further develop the State of California by means of new utilities are encouraged to proceed. In other words, the policy of most of the other states amounts to throwing cold water on the development of new public utilities, while in California such development is encouraged in proper cases.

132—Protection from Competition.

The leading case which has been decided by this Commission under section 50 of the Public Utilities Act is the case of Pacific Gas and Electric Company vs. Great Western Power Company, Case No. 269, decided June 16, 1912. In that case the Commission held, in effect, that if the existing utility is giving rates as low as can reasonably be expected and is serving all who apply, so that the field is fully covered, this Commission will be slow to permit a new utility of the same character to enter the same field unless it appear that the new utilities, by reason of some natural advantage or improvement in process or similar matter, can give to the public, service materially better or rates materially lower than those of the existing utility. In that case the Commission held that if the rates are as low as they can reasonably be expected to be and the service is as good, and the field is covered, the public has nothing to gain by the admission of the new company, while the general public of the State has much to lose by the establishment of the principle that even if a public utility is doing its full duty to the public, it shall nevertheless be subject to the competition of any other public utility desiring to enter the same field, either for legitimate or illegitimate purposes. The Commission held that it would expect evidence to be introduced, showing clearly the facts with reference to the different elements of the case, and bearing particularly on the ability both of the existing company and of the applicant profitably to give such rates and service as to fully comply with the duty of a public utility to the public. Furthermore, the Commission held in that case that it would judge the two utilities as of the day when the new utility filed its application with this Commission, so

that a utility desiring to be protected in the way of competition must do its full duty to the public *before* and not *after* the new-comer knocks at the door. These main principles established in the Pacific Gas and Electric Company case were established after considerable thought by this Commission, and will be followed in other cases. If other facts arise in any particular case, taking that case out of the facts in the Pacific Gas and Electric Company case, it may be necessary for the Commission to establish further principles.

132.9—Development Duplication.

While we are discussing this point it is well to call attention to the fact that while our decision in the Pacific Gas and Electric Company has had a substantial effect upon the rates and service of the various utilities in the State in territory not under competition, yet up to the present time we know of very few instances where utilities under no fear of competition have gone as far in the revision of their rates and improvement of their service as we feel they should. We believe that our position heretofore assumed and herein affirmed is the correct one, but if after giving it mature trial we find that the utilities do not voluntarily under the stress of potential competition afford the very best rates and the most adequate service which it is possible for them to accord in non-competitive territory, we shall be forced to the conclusion that other methods must be adapted by us to bring about this result. It may be that if the utilities of the State do not in good faith accept the doctrine which we have held applicable in return for being protected from loss of revenue by competition, and accord to all their patrons that treatment to which they are entitled, voluntarily and without compulsion either from this Commission or under competition, we may be constrained to take the view that they may not justly demand protection from us. It will not avail the utilities anything to enter into understandings between themselves whereby the exclusive territory of one will not be interfered with by another, and under the protection of such agreements maintain unreasonable rates and inadequate service with such territory. This Commission is going to secure for the public reasonable rates and good service from utilities, and as soon as it finds that the method which it has adopted up to the present time, wherein it is sought to give the public the service to which it is entitled without injuriously affecting the utility, has not brought about the desired result, we shall resort to other methods. It cannot be expected if the utilities do not keep their faith that this Commission will continue to be solicitous for their welfare when such utilities, by their disregard of the public interest, have rendered what we consider the fairest solution of this question ineffective. . .

It appears to us that the rates proposed by the Oro Corporation have been worked out very largely with the purpose of simply

“shading” the existing rates of the Western States Company, and not with the sole intention of ascertaining the rate for which the Oro Corporation can afford, bearing in mind a reasonable return, to supply electric energy. We desire to make it clear that the Commission does not look with favor on the practice of merely “shading” existing rates. A utility desiring to enter a field being served by another utility of like character should understand that it can not make out its case by simply figuring out rates slightly lower than those of the existing utility, but that it must present to the Commission evidence clearly showing what rate it can reasonably give to the public and at the same time secure for itself a reasonable return on the value of the property actually used and useful for the public purpose. It should be said that in this case the engineers of the Oro Electric Corporation presented to the Commission complete evidence with reference to this point. . .

In reaching this conclusion, we wish to be distinctly understood as affirming the ruling in the Pacific Gas and Electric Company case to the effect that the existing utility and the applicant are to be judged as of the time when the application is filed. We wish to be distinctly understood as announcing that we will not, except under the most unusual circumstances, permit an existing utility which has not done its duty to the public, to keep its field to itself by agreeing that it will henceforth improve its service or lower its rates or more completely serve the field or in any other respect comply with its full duty to the public. The only reason why we do not judge the Western States Company as of the day when the Oro Corporation filed its application is that on the facts of this case, it would be unfair and unjust to do so.

Feeling as we do that the Western States Company has been “caught” at a peculiarly disadvantageous time, nevertheless we would grant the application in this case unless we were convinced that there is reasonable ground for believing that as the result of the completion of the reconstruction work the Western States Company will be able to do its full duty, both as to service and as to rates. There is no doubt that a large part of the poor service which has existed in Stockton within the last few months has been caused by the reconstruction work which was being done by the Western States Company in an effort to improve the system. To that extent, undoubtedly, the service will be improved when the work has been completed. . .

We desire at this point to state that in all applications henceforth on the part of one public utility to enter the territory being served by another public utility of like character, this Commission will look not only to the existing utility, but also to the manner in which the applicant has fulfilled its duties to the public and complied with its representations to this Commission with reference to territory which it may be serving. . .

With reference to the remaining portion of the territory affected by this application, including the city of Stockton, and a portion of San Joaquin County adjacent thereto, the Western States Company will be given ninety days from the date of the order in this proceeding within which to complete its reconstruction work. If the Western States Company shall within said time have satisfied the Commission that its reconstruction work has been completed and that its service has become what it should be and shall have submitted to the Commission such rates as the company may deem just and reasonable, not to exceed, in general, the rates which the Oro Corporation has shown that it can reasonably accord, the Commission will issue a supplemental order denying the application as to this portion of the territory. Otherwise the Commission will, by its supplemental order, grant to the Oro Corporation its application in toto.

NEW YORK (1st D.)

72—Rate Schedules.

The FLATBUSH GAS COMPANY, Borough of Brooklyn (29th Ward only), Greater New York, has been granted special permission by the New York Public Service Commission (1st D.) to put into effect seven days after publication a supplement to its schedule of rates for power purposes. In its application the company states that recently it had a request from an ice manufacturer for the supply of electric current for power purposes in quantities so large that it is necessary to extend the old scale of discounts to make an attractive rate to the prospective consumer.

The present rate is:

Rate.

12 cents per kilowatt-hour for first				800 kilowatt-hours per month.			
10	"	"	"	from 800 to 1200	"	"	"
8	"	"	"	" 1200 " 2000	"	"	"
7	"	"	"	excess over 2000	"	"	"

Discounts.

On monthly bills for	100 Horse-Power-Hours and over	(Less than	200)	20	%
" " " "	200	" " " "	400)	25	%
" " " "	400	" " " "	600)	30	%
" " " "	600	" " " "	800)	35	%
" " " "	800	" " " "	1000)	40	%
" " " "	1000	" " " "	1500)	45	%
" " " "	1500	" " " "	5000)	50	%
" " " "	5000	" " " "	10000)	55	%
" " " "	10000	" " " "	15000)	60	%
" " " "	15000	" " " "	20000)	65	%
" " " "	20000	" " " "	25000)	70	%
" " " "	25000	" " " "	35000)	75	%
" " " "	35000	" " " "	55000)	80	%
" " " "	55000	" " " "	80000)	81	%
" " " "	80000	" " " "		83	%

These discounts were already in use up to 55 per cent on monthly consumption of 5000 horse-power-hours and over. The new supplement authorized by the Commission extends the sliding scale of discounts up to 83 1-3 per cent, as above.

WISCONSIN

82—State Regulation of Municipal Utilities.

Application of the CITY OF NEENAH, (Pop. 5734) WISCONSIN, for Adjustment of its Water Rates. Decision of the WISCONSIN RAILROAD COMMISSION, Revising the Rates November 29, 1912.

The municipal water works plant in question has been operating since 1893, and for some time has not been on a paying basis, as the revenue received was not sufficient to make adequate provision for interest and depreciation. The city therefore applied to the Commission to investigate as fully as might be necessary all matters pertaining to the water service, and to revise the rates in the light of the facts found.

The Commission made a valuation of the property of the Company, also an investigation of its receipts and expenditures, as filed with the Commission for two years back, and made an apportionment over output, capacity and consumer expenses, and a further apportionment among the different departments of the service, domestic, industrial and fire protection.

The Commission then worked out a system of meter rates, the charges for fire protection and street sprinkling were also specified, and it was further ordered that the city purchase at a fair price all the meters which were installed by consumers before the policy of furnishing free meters was adopted, as the Public Utilities Law prohibits the granting of any lower rates to consumers who own their meters than to those who do not. These charges, it is estimated, will result in providing the needed revenue.

Editorial Note: The advantages of State Regulation for municipal plants are indicated by this case, and are being more and more appreciated by such plants in Wisconsin. The Commission, with its corps of experts, engineers, accountants, etc., and its large experience in handling these questions, aided by its disinterested position, is at the service of the municipalities to put their plants in the best and most economic running order, and to establish their rates on the most approved principles of the cost of service.

72— Rate Schedules (New Glarus, Wis.)

Application of the NEW GLARUS (Pop. 708) MUNICIPAL ELECTRIC LIGHT AND WATER PLANT for authority to Increase its Rates. Decision of the WISCONSIN RAILROAD COMMISSION, Increasing the Rates, November 22, 1912.

on the cars of said companies, its lessees or assigns, free of all charge." The Company claims that its free service should be limited to "uniformed policemen while on duty," and contends that its rule to this effect is reasonable and necessary, as any other method of identification would make futile every attempt on the part of inspectors to check the work of the company's inspectors.

The Commission, however, rules that the franchise obligation is compelling on the company in the terms of the ordinance, though it pronounces extreme and indefensible the city's argument that its policemen are always on duty except when absent or on furlough, and admits the difficulty for the company of distinguishing between when they are on duty or off duty.

How the company is to determine when the obligation of free carriage is incumbent on it, we do not decide. If they set up tests, such as that of uniform, which work to violate their obligations under the franchises, they violate their obligations under the franchises and become liable therefor.

223— REPORTS TO COMMISSIONS (INDIANA)

The PUBLIC SERVICE COMMISSION OF INDIANA has asked the companies which come under its jurisdiction to answer the following list of questions before July 18, 1913.

These questions give, in general, the scope of preliminary information which is required by the Commissions, immediately after organization.

What is the exact name of the utility? If a corporation, give the name and address of each officer of the corporation, including its board of directors.

To whom and what address should mail be sent when intended for such utility?

What is the actual value of all property of such utility?

State the amount of stock issued by said utility and now outstanding.

If the utility is bonded, state for what amount; when such bonds were issued; when they mature and what rate of interest such bonds bear.

What is the actual value of all property of such utility which property is in the state of Indiana and is used and useful for the convenience of the public?

In the answer you make to the last question, how much have you estimated for "going value"?

For what amount was the property of such utility assessed for taxation in the year 1912?

In the production of what service or product is such utility engaged?

Is such utility engaged in the production of any by-products? If so, what?

What was the gross revenue of such utility in the year 1912, or the last fiscal year of such utility?

What were the operating expenses of such utility during the period mentioned in the last question?

Have you established a depreciation fund for such utility?

If so, what per cent do you set aside for such fund?

If you have established no depreciation fund, what per cent of the fair value of the property of such utility used and useful for the convenience of the public do you think ought to be set aside for a depreciation fund?

What was the net income or "deficit" of such utility for its last fiscal year?

What is the date of the franchise under which you are operating and for what number of years was it granted?

If your franchise fixes any rate or rates which you may charge for the service or product produced by such utility, give the particulars thereof in full.

What was the total production of such utility for its last fiscal year?

What was the cost per unit of service for the production for the last fiscal year of such utility?

What amount does such utility pay its officers in salaries?

State the amount received by each officer as salary.

REFERENCES

RATES

4—Rate Theory.

RATE MAKING. Report of the Committee on Rates to the Natural Gas Association of America in Convention at Cleveland, Ohio. *The Gas Age*. 2½ pages. July 1, 1913. p. 6.

This states that since regulating bodies are now everywhere determining rates by a consideration of a fair rate of return on a fair valuation of the property used and useful for rendering the service, it is essential that every company should prepare as soon as practicable a valuation of its property for rate making purposes, and adjust its accounting thereto, and make its reports to regulating and taxing authorities accordingly. As taxes are included in operating expenses, only one valuation should be established for all purposes. The majority of the committee reports against a sliding scale of prices based on quantity only, as unfair to the smaller consumer. Though the "value of the service" as fixed by the com-

petition of other sources of light and power will limit the maximum rate, yet the only rate to be successfully defended before commissions must be based on the cost of service, including the three elements, actual expenditures in operation, expenditures for maintaining the integrity of the capital invested, including full provision for depreciation and amortization, and a rate of return commensurate with the hazard of the enterprise.

41—Cost of Service.

COST OF MANUFACTURING IN SIX MEDIUM-SIZED CENTRAL-STATIONS, by E. F. LATHROP, *Electrical Review*, 1 page, July 5, 1913, p. 11.

This gives a comparison of the costs of manufacture of six medium-sized Massachusetts companies, as taken from their operating records for the year ending June 30, 1912. Steam is used entirely in all of the power plants. An outline of the mechanical and electrical equipment of each power house is given, and a table showing the comparison of all the costs of the six installations. The highest cost per kilowatt-hour is 1.31 cents, the lowest, .759 cents, the last plant being about four times as large as the first.

61—Character of Service.

ELECTRICITY IN BROOM MANUFACTURING, illustrated article, *Electrical Review*, 4¾ pages, July 5, 1913, p. 7.

This states that the most important items in the advantages of electric motor drive for broom manufacture are uniform speed, reduced fire risks, flexibility and reliability. Conditions in a typical plant are discussed, and data on six such installations are given.

INVESTMENT AND RETURN

3—Investment and Return.

THE MINNESOTA RATE, Editorial, *Engineering and Contracting*, July 2, 1913, p. 1.

This states that the upholding by the United States Supreme Court of the authority of the States to fix interstate rates is not the vital part of the decision, but the principles laid down for valuations and rate making, and that the taking of "market value" of adjacent land, without the use of multiples to cover expense of acquiring it, etc., as the fair value of the present railway right of way is a grave mistake which the Court will doubtless recognize when it is more fully presented to it in the next important railway rate case to come before it on appeal.

3—Investment and Return.

GROWING PRESTIGE OF PUBLIC SERVICE BONDS, *The Gas Age*, 1¼ pages, July 1, 1913, p. 27.

This shows from figures taken from various financial reports that public service bonds are growing in favor with investors, and in consequence now enjoy a better and more stable market on the average than either railroad bonds or those of industrial corporations. A compilation showing the increase in earnings of 237 electric railways in all parts of the country is cited, and the marked tendency to the union of light, power and electric transportation services makes for the prosperity of all. It is shown that there is greater stability of public service earnings, and that state regulation has contributed to the situation by protecting public service monopolies. A compilation typical of the others is that of the *Wall Street Journal* for the six months prior to May 1, 1913, showing that

twenty-one standard railroad stocks declined an average of 13.75 points, seventeen active industrials 17.18 points, and twenty-two public service stocks, only 2.72 points.

313—Prices.

PRICES OF ENGINEERING MATERIALS, PRICE CHANGES AND THE BUSINESS OUTLOOK. *Engineering News*, 5 pages. July 3, 1913, p. 41.

PUBLIC SERVICE REGULATION

2—Public Service Regulation.

PREJUDICE AGAINST UTILITY COMMISSIONS, editorial *Public Service*, 1 page. July, 1913, p. 1.

This states that a member of one of the most efficient commissions recently remarked that a majority of the men in the street believe commissions are controlled by the corporations, and calls attention to a newspaper statement in the recent Chicago agitation for "home rule" of an alderman of Seattle, Wash., who said that its state commission had shown that it was working for the corporations and not for the people by authorizing an increase of rates by the telephone company and by the gas company. A brief abstract from the decision in the gas case in question is here given and shows how stringent this Commission was in its regulation of the Company's affairs, prescribing rates which yielded but 5 per cent on the investment. This should dispose of the charge of being "a tool of the corporations." It is further stated that only the fact that the Commission's order stated that the specified rates should be in the nature of a test, prevented the matter from being taken into the courts, as 5 per cent is not an adequate rate of return for the public-utility investment.

2—Public Service Regulation.

EFFECT OF UTILITY REGULATIONS UPON THE BANKS, by H. W. DREHER, *Public Service*, 1½ pages. July, 1913, p. 21.

This is a discussion of the value of regulation by state commissions, as affecting four main divisions of interests, those of the promoter, the public, the corporation, and the investor. The benefits to utilities under the Wisconsin law by reason of indeterminate permits which guarantee them practically unlimited existence when furnishing good service, are noted, and in the rare case when a municipality exercises its power to acquire a utility the procedure must be fair and the compensation adequate as determined by the commission. Also the suggestions given for more efficient management and the uniform system of accounting installed by this Commission are pronounced to have been of inestimable benefit to stockholders and to citizens.

But the great effect of such regulation from the investor's point of view is the better security of the bonds. It is stated that the public utility bond, with great opposition has had to fight for a market, for a price, and for ready absorption until today, it is perhaps the most attractive form of bond investment, having behind it the ample security of a property rendering an essential service in a growing community, and yielding to the investor the most attractive interest return, consistent with conservative security, upon the market. The period of greatest development in the flotation of public utility securities has been the past six or seven years; the greatest incentive thereto has been the enactment of sound public utility regulation laws.

The 3 per cent railroad bond, the prime security of years past, has had to increase its interest rate by half per cents until today, the approximate interest rate is 4½ per cent with an average income yield close to 5 per cent. Bonds

based upon earning power, though reasonably safe, can never equal in security those whose desirability is based primarily upon the basis of physical valuation plus earning power. By the provisions of the act an issue of bonds, before being marketed, must be authorized by the commission. An act precedent to such authorization is the placing upon the property of present physical value which means not book value nor original cost, but present depreciated value, which is the only sound basis of valuation.

268—Public Service Laws.

THE ILLINOIS PUBLIC UTILITY LAW, Editorial, *Electrical World*, July 5, 1913, p. 3.

This states that the new Illinois law is an excellent one in all important respects save that municipally owned utilities are exempt from regulation. This is a serious defect, as experience elsewhere, in Wisconsin for example, shows that municipal plants as a whole are as much in need of regulation as privately owned ones, if not more so.

MUNICIPALITIES

83—Municipal Ownership.

ELECTRIC RATES IN SEATTLE, WASH., by GLENN MARSTON, *Public Service*, 31½ pages. July, 1913, p. 27.

This is a report on the municipal electric plant of Seattle which has been advertised as very successful. Its present rates are:

GENERAL LIGHTING RATE.

Rate—

6 cents per kilowatt-hour for first	60 kilowatt-hours per month.
4 cents per kilowatt-hour for excess over 60 kilowatt-hours per month.	

Minimum Charge—

75 cents per month.

It is stated that the plant, in order to make expenses under these rates, had to raise its street lighting rates, and this excess of cost which has to be met by the taxpayers, as well as the increase in general taxes due to the fact that the municipal plant pays no taxes, the present writer claims more than balances the saving to the public from the lower rate. It is stated that discriminatory rates are used, and unbusiness like rate schedules resorted to as ordered by the City Council for the purpose of getting votes, and that this is the reason for the local opposition to the control of the municipal plant by the State Commission.

84—Municipal Operation.

OPERATING A CENTRAL STATION AGAINST MUNICIPAL COMPETITION, by ED. KELLEY, *Public Service*, 2½ pages. July, 1913, p. 33.

This tells in a pointed and humorous style the difficulties and problems met in building up a profitable business in a small city, 7000 population, (Texas) against municipal competition. It shows that this manager has considered every detail of possible improvement in running the business, and in keeping down expenses, and every practical means of getting new customers, and increasing sales, by off-peak current consuming devices, etc., to old customers. In a commercial campaign in which newspaper advertisements and a solicitor to

canvass unwired homes were both used, a flat rate was offered which proved attractive to the small homes, namely, 3 16-candle power lamps (Mazdas) for \$1.00 per month, 30 cents for each additional lamp, with 5 per cent discount for payment in advance. After getting 156 consumers on this rate it was found that it brought in an average of \$1.70 per customer per month for every month in the year, or \$180 per year per kilowatt of maximum demand. Also a flat rate for show window lighting and signs of 1.5 cents per watt per month was offered which resulted in lighting practically every window in the business district. This central station, with the handicap of the competing municipal plant, has built up from 97 consumers to a little over 400 in two years.

GENERAL

98—Public Relations.

THE MUNICIPALITY AND THE COMPANY, by JOSEPH H. DUNKEL, *Public Service*, 13¼ pages. July, 1913, p. 11.

States that every active public utility is composed of two parts—a plant and a franchise, and as the streets and alleys which the public utility uses belong to the public, the company's business affects the public interest, and the people have a right to a knowledge of the business. The present protection of the public and the utilities by state commissions is the best solution of the situation. Square dealing, unfailing courtesy, a wise publicity and first-class service are now relied upon by the up-to-date corporations to make the public their friend and get rid of the political juggling which has harmed them in the past.

98—Public Relations.

A LARGER ARBITRATION BOARD, Editorial, *Electric Railway Journal*, July 5, 1913, p. 3.

This comments on one of the proposed amendments to the Erdman law enlarging the board of arbitration from three to six members. It is called a beneficent change, which offers a much better chance of settling labor disputes fairly than did the old plan of two partisans and an umpire. The new board will consist of two members appointed by the company, two by the employees, and two chosen by these four, or in case of their failure to agree, by the board of mediation and conciliation created by the proposed law, to be composed of a commissioner and assistant commissioner and not more than two other officials all appointed by the president.

98—Public Relations.

THE PUBLIC AND THE GAS COMPANY, by J. C. M. SHREWSBURY, *The Gas Age*, 2½ pages. July 1, 1913, p. 29.

This dwells upon the necessity of courtesy and loyalty on the part of all employees of the company towards its patrons, especially the subordinates who come most in contact with the public, as in taking orders over the telephone or hearing complaints. This is now being recognized and hence the educational and social meetings which are being instituted by the companies, and are doing much to remove the antagonism which corporations and monopolies incurred in the past when their attitude was frequently one of bullying independence toward the public.

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RATE RESEARCH



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CONTENTS	Page
COMMISSION DECISIONS.....	243
Wisconsin.....	243
New Jersey.....	246
California.....	248
Wisconsin.....	249
New York (1st D.).....	250
COURT DECISIONS.....	251
Massachusetts Supreme Court.....	251
Lamps—new prices.....	251
Municipal Schedules.....	252
REFERENCES.....	253
Rates.....	253
Investment and Return.....	254
Municipalities.....	255
General.....	256

Rate Research

Vol. 3.

CHICAGO, JULY 16, 1913

No. 16

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COMMISSION DECISIONS

WISCONSIN

72—Rate Schedules.

Complaint against the CHIPPEWA VALLEY RAILWAY, LIGHT AND POWER COMPANY, Eau Claire (pop. 18,310), Wise., Alleging Discrimination in Rates and Rules. Decision of the WISCONSIN RAILROAD COMMISSION, prescribing Rates and Practices. November 11, 1912.

At the time this case was decided a brief abstract of the general lighting rate ordered was given in 2 RATE RESEARCH 137. The text of the decision is now received, and contains complete rate schedules for different classes of service.

52—Determination of Demand.

One main classification used by the company in working out its rate system is a distinction between consumers who use electricity exclusively, and those who use also some other means of light or power, this difference being applied in estimating active and non-active lamps in fixing the demand element of the rate. The Commission rules that this classification is discriminatory and must be discontinued, as it does not represent any difference in cost of supplying the service and therefore does not serve the purpose of a demand charge, namely, distributing to each consumer the share of the capacity expenses he occasions, as measured by his demand during the station peak.

615.2—Development Rates.

The Company has also used another plan to induce customers to install electricity exclusively, by providing in an introductory power rate that such consumers using no other source of power for three years but electricity purchased from the Company, shall be entitled to a refund of 25 per cent of the cost of their electrical equipment, whether purchased from the Company or elsewhere at prices not above the Company's, this amount to be refunded monthly and deducted from the monthly power bills. The Commission sustains this measure for developing the power load and says:

In view of the fact that this period of exclusion is only for three years, during part of which time the company is refunding a part of the cost of the electrical equipment installed, we cannot see

EDITORIAL NOTE.—All indented matter is direct quotation.

that it is unreasonable. Surely a consumer cannot expect that 25 per cent of his equipment be furnished free, and that then he be permitted to use some other kind of power at the same time, as that would defeat the purpose of the rate, which is to encourage the use of electrical current. After the three-year period has expired the consumer can use any other kind of power he chooses. This might result in serious competition for the gas company, but that cannot be helped. Each utility is entitled to develop its business as far as possible. For an electric utility it is important that the sale of power be encouraged, as it is through the greatest possible development of its power business that lower rates for its customers can be obtained. It must be borne in mind, however, that the cost of any concessions offered as an inducement to manufacturers to use power cannot be charged so that they can or will be made the basis for increases in rates to other customers; and further that such concessions must not result in unjust discrimination between those engaged in competitive and other enterprises. If the electric company can manufacture and sell current for power at the rate quoted without endangering its financial stability or impairing its service, we see no reason why it should not be permitted to do so. If the gas company cannot meet this competition without impairing its service or financial stability, then it will have to leave the field and confine its attention to those branches of service in which it is the most efficient. . . .

511—Flat Rates.

The Commission also dismisses the complaint against another rule of the Company providing that it may charge its flat rates at its option:

The Company's rule under flat rates provides "that the Company shall not be required, at its own expense, to furnish or install meters for any consumer using less than five 50-watt units or the equivalent thereof . . . or the Company may, at its own option, install a meter for any such consumer." This rule is not deemed to be unreasonable; as it is hardly profitable under ordinary circumstances to install a meter for a consumer who has only four 50-watt units or less connected. . . .

The following decision is announced:

It is Ordered, That . . . the Chippewa Valley Railway, Light and Power Company, amend its present schedule of rates for electric light and power and place in effect, as a substitute therefor, either schedule A or schedule B, or both, giving consumers their option as to the schedule under which they wish to come. . . .

Schedule A. LIGHTING SERVICE.

(Including incidental use of heating and power on lighting circuits and passing through the same meter.)

Rate—

Demand Charge—

15 cents per month per active lamp of 50-watt capacity.

Energy Charge—

3 cents per kilowatt-hour.

Minimum Charge—

\$1.00 per month.

Maximum Rate not to exceed 9 cents per kilowatt-hour (except where authorized by minimum charge).

For signs, window display, and advertisements on a yearly contract basis:

Rate—

Demand Charge—

5 cents per month per lamp of 50-watt capacity.

Energy Charge—

3 cents per kilowatt-hour.

Minimum Charge—

\$1.00 per month.

Determination of Demand—

Class A—Residences, etc., 60% of the connected load up to 500 watts, and 33.3% of the excess, shall be considered active.

Class B—Stores, banks, etc., 70% active.

Class C—Hotels, federal, state, and county buildings, schools, small factories, etc., 55% active.

Class D—Opera houses, churches, etc., 40% active.

Class E—Signs, 100% active.

COMBINATION LIGHTING AND POWER RATE

For Small Motors.

(Where individual motors of less than 5 horse-power are installed in conjunction with use of electricity for lighting.)

Rate—

Demand Charge—

None for motors.

15 cents per month per active lamp of 50-watt capacity.

Energy Charge—

3 cents per kilowatt-hour for all current consumed.

Schedule B.

RESIDENCE LIGHTING SERVICE.

Rate—

Demand Charge—

15 cents per month per active lamp of 50-watt capacity or its equivalent.

Energy Charge—

3 cents per kilowatt-hour for all current consumed.

Determination of Demand—

ACTIVE LAMPS are those in main hall, main stairway, parlors, library, one 50-watt unit in dining room, sitting room, living room, kitchen, den, music room, conservatory, butler's pantry, and one 50-watt unit on the second floor, provided the active lamps shall not exceed 75 per cent of the total installation.

NON-ACTIVE LAMPS are those on porches, in vestibules, basements, attics, closets, bed rooms, bath rooms, lavatories, wood sheds, stables, back halls, back stairways, one portable reading lamp used in active rooms, and all other rooms not herein otherwise specifically mentioned.

FOR BUSINESS SERVICE

the demand charge of 15 cents per 50-watt unit, and energy charge of 3 cents per kilowatt-hour remain uniform, with a limiting maximum rate of 6 cents per kilowatt-hour, and numerous specifications determining active and non-active lamps are detailed.

RESIDENCE FLAT RATE.**Rate—**

30 cents per month per 50-watt unit or its equivalent.

Minimum Charge—

90 cents per month.

BUSINESS FLAT RATE.**Rate—**

50 cents per month per 50-watt unit or its equivalent.

Minimum Charge—

\$1.50 per month.

ARC LIGHTING.**Rate—****Demand Charge—**

45 cents per month for each 6 ampere a. c. lamp connected.

Energy Charge—

3 cents per kilowatt-hour for all current consumed.

Maximum rate shall not exceed 6 cents per kilowatt-hour for the total current used each month.

NEW JERSEY**149—Holding Companies.**

Application of MONMOUTH LIGHTING COMPANY for Permission to Transfer Certain Shares of Capital Stock upon Its Books to EASTERN UTILITIES CORPORATION. Decision of the NEW JERSEY BOARD OF PUBLIC UTILITY COMMISSIONERS, Denying the Application. May 13, 1913.

This application is made under the provision of the New Jersey Public Utilities Act prohibiting a public utility from selling or transferring on its books a majority of its capital stock to any corporation except as authorized by the Commission, as the shares referred to in the petition constitute the entire initial issue of the stock of the Monmouth Company.

Of the company to which it is sought to transfer the stock the Commission says:

The Eastern Utilities Corporation is a corporation of this State organized under the general corporation act. Although its certificate of incorporation attempts to confer upon it power to engage in almost every kind of business and enterprises, the statement is made by its Treasurer that it is a "holding company for utility company securities."

The general corporation act of New Jersey was amended, effective February 19, 1913, so as to provide

No corporation heretofore or hereafter to be organized under the provisions of this act to which this is an amendment, * * * shall hereafter purchase, hold, sell, assign, transfer, mortgage, pledge or otherwise dispose of the shares of the corporate stock of any other corporation or corporations of this or any other State, * * * nor as owner of such stock exercise any of the rights, powers and privileges of ownership, including the right to vote thereon, * * *

Two general exceptions to this prohibition are included in the amendment, the first being:

"any corporation formed under this act may purchase * * * the stock of any corporation, necessary for its business, and issue stock to the amount of the value thereof in payment therefor, * * * Provided * * * that the property owned by the corporation whose stock is purchased shall be cognate in character and use to the property used or contemplated to be used by the purchasing corporation in the direct conduct of its own proper business * * *"

The decision on this point says:

If the object for which the Eastern Utilities Corporation was formed is now capable of accomplishment, its proper business will consist in acquiring and holding shares of the capital stock and of securities of public utility corporations and disbursing the returns thereon in the form of dividends; the property used or contemplated to be used by it in the direct conduct of its own proper business will, aside from office equipment, consist, in the main, of moneys paid in under subscriptions to its capital stock and of shares of the capital stock and of securities of public utility corporations.

The business of the Monmouth Lighting Company is that of generating and distributing light, etc., its property consists of a light generating and distribution plant and the franchises under which the same is operated.

In the judgment of this Board the property owned by the Monmouth Lighting Company is not cognate in character and use to the property used or contemplated to be used by the Eastern Utilities Corporation in the direct conduct of its own proper business.

The second exception provides that no right acquired previous to the passage of the amendment should be impaired thereby, which is also found not to apply to the present case, as the Eastern Utilities Corporation, though empowered under its incorporation to do so, had not actually exercised the right of acquiring the stock of any other corporation prior to the date of the amendment, and the transfer of stock is therefore not allowed.

(It will be noted that this decision in effect prevents in this respect the operation of the holding company in question.)

149—

Holding Companies.

Application of PUBLIC SERVICE GAS COMPANY for Approval of Stock Issue. Decision of the NEW JERSEY BOARD OF PUBLIC UTILITY COMMISSIONERS, Granting the Application, and Permitting Subscriptions by a Holding Company. June 3, 1913.

The Commission after approving of the issue, which is for extension and betterment of the Company's plant, proceeds to determine the question which it anticipates may arise in this connection, of whether the PUBLIC SERVICE CORPORATION, a "holding company" organized under the general corporation act, may take up any part of this new capital stock. The decision is that it may subscribe for and take its *pro rata* allotment of the new issue, for the reason that it had acquired and exercised the right of owning stock of this company prior to the date of the amendment prohibiting such holding. (See preceding case.)

CALIFORNIA

41—Cost of Service.

Application of SOUTHERN COUNTIES GAS COMPANY to fix Gas Rates in Orange (pop. 2,920). Decision of CALIFORNIA RAILROAD COMMISSION, Establishing Rates. May 9, 1913.

The city authorities of Orange passed an ordinance fixing the price of gas at \$1.15 per thousand. The Company took the matter to the court where it is still pending. The voters of the city then held an election and transferred their power of control over gas corporations to the State Commission. This body made a valuation of the entire system, a high pressure line which serves three other cities, the jointly used property was prorated on the percentage of gas used in the various districts, the estimate of cost submitted by the Company, 91.3 cents per thousand, was found to make inadequate provision for depreciation, and finally a rate of \$1.22 per thousand was fixed by the Commission.

The decision concludes

After a careful consideration of all the evidence we are of the opinion that a rate of \$1.22 is a proper rate to be charged by

applicant in the city of Orange. It is not to be understood that this rate is to be taken as a measure of the proper rate in the other cities served from this system, but taking into consideration the value of the property as apportioned to this city, the cost of producing the gas, the necessary depreciation and the probability of added consumers being secured, we believe that this is a proper rate.

While we believe this conclusion is justified at the present time, if, however, conditions change either in favor of or against the applicant, this Commission will again, when the matter is brought to its attention, revise the rates as the facts at such time may warrant.

WISCONSIN

84—Municipal Operation.

Application of the LAKE MILLS (pop. 1,672), WISC., MUNICIPAL LIGHT AND WATER COMMISSION for Investigation of Its Practices and Affairs. Decision of the WISCONSIN RAILROAD COMMISSION Advising Business Methods of Management. Dec. 11, 1912.

This application was the outcome of differences between the Mayor and the majority of the Water and Light Commission. The State Commission found on investigation that the affairs of the city's water and light plants have been conducted in disregard of the provisions of the trust deed securing the mortgages on the property, which required that the income from the operation of the plant over and above the actual and necessary running expenses and maintenance, should be kept as a separate fund in the city treasury, out of which the interest on the mortgage should be paid, and also the procedure was in violation of the provisions of the law covering municipal utilities. It also found that when the water and light board was appointed by the former mayor he encountered difficulty in securing citizens of standing and business ability to serve, and therefore some concessions were made as to their duties in checking the accounts, and the general handling of the finances, contrary to the provisions of the statute as to the auditing of all bills by the board. Therefore instead of all funds, including revenue and income derived from the utilities and moneys appropriated therefore by the Common Council being kept on deposit with the city treasurer and disbursements made only after bills had been approved by the water and light board, these moneys were deposited in a bank in a separate account of the manager of the plants, and all payments of bills were made by him by check without any auditing of the accounts by the board, and the city treasurer had no information whatever of the financial transactions of the water and light department. The Commission states that its expert accountant's examination of the books shows that the disbursements have all been

proper, yet the method of making them is incorrect and must be changed to conform to the requirements of the trust deed and of the law.

The decision concludes:

There is no valid reason why any differences of opinion should exist between the mayor and the Commission. All are men of excellent business judgment and capacity. They should find no difficulty in working together harmoniously in the management of the plants. Doubtless if the plants were privately owned and operated by the members of the Commission, no conflict of opinion would be found as to the proper policy that should be pursued in conducting the affairs of the business.

NEW YORK (1st D.)

72—Rate Schedules.

Complaint against the BROOKLYN BOROUGH GAS COMPANY, Alleging Excessive Rates. Decision of the New York Public Service Commission (1st D). Reducing the Rates from \$1.00 to 95 cents per thousand. July 14, 1913.

The Brooklyn Borough Gas Company supplies the 31st Ward of Brooklyn which includes the Coney Island District. The original complaint against its rates was filed in October, 1910, but after hearings it was dismissed by the Commission, with the statement that conditions at that time did not warrant a reduction, but if the steady improvement shown in the company's business should continue, a reduction could be made. On the renewal of the complaint in March, 1913, the Commission made a careful examination and appraisal of the company's plant and property, and with the knowledge of the business derived from its former investigation, was enabled to make comparisons showing that the sales of gas had greatly increased, the operating expenses had decreased, including a lowering of the cost of manufacture from 31.29 cents in 1910 to 21.26 cents in 1912. Commissioner Maltbie who conducted the hearings and investigations thereupon decided that, allowing for a return of 8 per cent on the total valuation a rate of about 94 cents for 1913, and 91 cents for 1914 would be justified. A margin however is allowed on this to cover possible increases in the cost of production, etc., and the decision reduces the rate, effective October 1, 1913, from \$1.00 to 95 cents per thousand. This rate is ordered to continue for the year 1914, and the statement is made that if conditions continue to improve another reduction of price will be possible in 1915. Such a method of regulation based upon a complete and continuing knowledge of the business being done, precludes any hasty or radical action by a commission, and allows the company the security of knowing that it will not have to meet without preparation any sudden cut in its prices.

COURT DECISIONS

MASSACHUSETTS SUPREME COURT

221.1—Issues of Stocks and Bonds.

FALL RIVER GAS WORKS COMPANY V. BOARD OF GAS AND ELECTRIC LIGHT COMMISSIONERS. On Certiorari to Review Board's Refusal of Permission for Stock Issue. Decision of the MASSACHUSETTS SUPREME COURT, Reversing the Decision of the Board of Gas and Electric Light Commissioners. *Stone & Webster Public Service Journal*, 10 pages. July, 1913, p. 25.

The Commission had denied the Gas Company's application for permission for a stock issue the proceeds of which were to pay for construction already made and for future additions to the plant. The ground of the refusal was that the Company had, in addition to the regular dividends of 10 per cent up to 1908 and 12 per cent since that year, declared two extra dividends, one of 20 per cent and one of 15 per cent, and the total amount of these extra dividends was almost enough to provide for the additional construction in question. The Commission thereupon so construed the law prohibiting a stock dividend as to find that to grant the issuing of this additional capital stock would be in substance an evasion of the law, and would be in effect compelling the public to pay such rates as would enable additions to plant to be covered out of earnings, while at the same time, these extensions and increases of property were capitalized.

The Court's decision is that this is an incorrect view of the law of the case; that since the expenditure in question was for purposes properly capitalizable, permission for the stock issue could not be withheld because the company did not elect to pay for additions to plant out of its surplus earnings; that the relation between the public and a utility company is not that of a partnership, but rather that of independent contracting parties, and that while the company is furnishing proper service at lawful rates, it is entitled to its earnings as profits, and the public may not claim a share in such earnings. The suggestion of a proper remedy is made as being the reducing of the profits of a gas company by an order lowering the price of gas if such order seems just and reasonable.

554—

LAMPS—SALE PRICE.

THE NEW YORK EDISON COMPANY, the UNITED ELECTRIC LIGHT AND POWER COMPANY, NEW YORK, the EDISON ELECTRIC ILLUMINATING COMPANY OF BROOKLYN, AND THE COMMONWEALTH EDISON COMPANY, CHICAGO, have announced reduced prices of tungsten lamps effective August 1, 1913, in accordance with a recent reduction published by the manufacturers, and these companies will also furnish free renewals of tungstens of 100 watts and over.

The old prices are:

Watts	Customers Entitled to Free Renewals Plain	Watts	Customers entitled to Free Renewals Plain
10	\$.32	60	\$.33
15	.26	100	.38
20	.26	150	.57
25	.26	250	1.07
40	.26	400	2.00
40 (large bulb)	.36	500	2.00

The new prices are:

10	Watts	\$.28
15	"	.25
20	"	.20
25	"	.18
40	"	.16
60	"	.14
100	and over	free

83—Municipal Ownership.

ANNUAL REPORT OF THE LIGHT AND POWER COMMISSION, Marquette, Mich. (pop. 11,503), for the Fiscal Year ending March 11, 1913.

This report covers all the business of this municipal electric company; the condition of its plant, noting additions and improvements; all costs, including calculations for depreciation on the different classes of property (investment divided on basis of earnings); sinking fund to meet outstanding bonds; and detailed revenues. This is a large water-power plant, the full water-power available being greater than all present uses. The following new schedule of rates was put into effect March 1, 1913:

LIGHTING RATES.

Rate—

5 cents per kilowatt-hour for first	200 kilowatt-hours per month.
4 " " " " " next	100 " " " "
3 " " " " " "	100 " " " "
2 " " " " " excess over 400	" " " "

POWER RATES.

Rate—

3 cents per kilowatt-hour for first	200 kilowatt-hours per month.
2 " " " " " next	200 " " " "
1 " " " " " excess over 400	" " " "

STREET LIGHTING.

Rate—

\$60 per year per 7.5 ampere enclosed arc lamp (all night schedule).

83—Municipal Ownership.

ANNUAL REPORT OF THE ELECTRIC AND WATER WORKS DEPARTMENT, Marshall, Mich., for Year ending April 14, 1913.

This gives a description and valuation of the electric and water works plants, and complete financial report in tables of itemized earnings and expenses including depreciation, etc. All electric generation is by water power. The present electric rates are:

RESIDENCE LIGHTING.**Rate—**

5 cents per kilowatt-hour.

Prompt Payment Discount—

10 per cent if paid within 16 days.

Minimum Charge—

50 cents per month.

COMMERCIAL LIGHTING.**Rate—**

4 cents per kilowatt-hour.

Prompt Payment Discount—

10 per cent if paid within 16 days.

Minimum Charge—

50 cents per month.

STREET LIGHTING.

\$35 per 6.6 ampere arc light per year.

\$10 per Tungsten light (average 68 watts).

(All night schedule.)

REFERENCES

RATES

41—Cost of Service.

A LIGHT, HEAT AND POWER PRIMER FOR THE BUSINESS MAN, by ARTHUR V. FARR. *The Isolated Plant*, 5 pages. July, 1913, p. 24.

This discusses different types of load, as for instance large and small apartment houses, hotels, office buildings, etc., in relation to the comparative advantages of central station or isolated plant service. The concluding paragraphs sum up the charges which central stations have to meet and private plants do not, as heavy investment for transmission, and added expense of its maintenance and depreciation, with electrical losses in transmission, advertising expenses, selling charges, uncollectible bills, and interest on the bonds and stocks. In favor of the isolated plant it is stated that its transmission losses are under 5 per cent, the value of the heating service reduces the cost of electricity, and the steam being used after passing through the engine, it is not necessary to purchase high efficiency machines, and the depreciation factor is therefore a minimum. No mention of compensating economies of central stations is included in this summary, and it is claimed further that isolated plants do not have taxes, and that current used by the central station itself amounts to 40 per cent of the amount sold (the efficiency of the isolated plant is presumably 100 per cent).

61—Character of Service.

ELECTRICITY IN SOAP MANUFACTURING, illustrated article, *Electrical Review*, 6 pages. July 12, 1913, p. 63.

An analysis of operating conditions and power costs in a typical steam-driven soap factory indicated that a substantial saving could be made by adopting central-station service. This is borne out by conditions in many plants. Information on selection of proper motors, advantages of motor drive, etc., is given in this article. Data on four such installations are given.

614—Heating and Cooking.

CHAIRMAN'S ADDRESS, MEETING OF THE "POINT FIVE" ASSOCIATION, June 17, 1913. London, England.

This is an association of the managers of all the electric plants in England which are selling electricity for heating and cooking at $\frac{1}{2}$ (.5) d. per kilowatt-hour (1 cent U. S. currency). The address tells of the measures which have been used in building up this load, pushing sales of electrical devices for cooking, heating and other domestic uses, as vacuum cleaners, washers, etc. It is stated that the effect on the day load of the central stations has been markedly beneficial, the diversity factor of a heating, cooking and miscellaneous domestic load being in the order of 20 to 1, and many favorable indications are mentioned showing that the development of this branch of electricity supply now promises to progress satisfactorily.

616.1—Street Lighting.

REPORT UPON THE FAIR AND REASONABLE PRICE OF A 6.6 AMPERE MAGNETITE ARC LIGHT PER YEAR, by WILLIAM D. MARKS. Pamphlet, 32 pages.

This is a study and computations to determine the proper price for street lighting, submitted to the Public Lighting Committee of Minneapolis, Minn., by the expert for the City. The City Council has recently ordered the rate reduced from \$70 to \$65 per 6.6 ampere magnetite arc light per year. The rate claimed by the Minneapolis General Electric Company which supplied the service was \$84. The present computations are based upon data from the Company's accounts, from physical data on the plant and its operation, from examination of an exhaustive report on the property and on total costs made by an expert for the Company, and from comparisons and deductions from similar calculations for such service in other cities. The price finally recommended is \$65.68 per 6.6 ampere magnetite arc light per year of 3,770 hours. It is stated that this covers costs, depreciation and a rate of return of 8 per cent. The fact of relatively long hours of use—about 10 $\frac{1}{3}$ hours a night—modifies the price for current. Tables of costs and income are given and tables and diagram showing relations of hours and use of electricity to its prices. The Minneapolis General Electric Company has since voluntarily reduced the rate to \$62.50 in order to obtain a larger amount of lighting.

INVESTMENT AND RETURN**31—Valuation.**

THE DECISION OF THE SUPREME COURT AS TO RAILWAY LAND VALUES. Editorial, *Engineering and Contracting*, July 9, 1913, p. 29.

This states that the reason of the rejection by the Court in the recent Minnesota rate cases of "multipliers" or "public utility factors" and of all overhead expenses, engineering, interest during construction, etc., in determining the value of the railroads' right of way, was undoubtedly due to the fact that the railroads had not properly presented before the Court the evidence of these costs of acquiring land. Commissions and courts have recognized such extra costs, and it is a matter of every day knowledge and experience that railways have to pay more than the "fair market value" of adjoining land in purchasing their rights of way. It is stated that the railroads did not even present "development cost" which is usually sufficient to wipe out accrued depreciation in their valuations, and it is pointed out that the service of the best expert appraisers is needed in presenting these

cases, and that consulting engineers can give advice of greater worth than is usually received from attorneys, as a rate case is about nine-tenths engineering of a very complex and special character, and one-tenth law.

3—Investment and Return.

BRIEF, by MILLER, MARK AND FAIRCHILD, Attorneys for the MILWAUKEE GAS LIGHT COMPANY, in the complaint before the WISCONSIN RAILROAD COMMISSION, Alleging Excessive Rates for Gas. 70 pages. This gives the argument for the Company as to the reasonableness of its gas rates, and presents testimony to prove the unusually high quality of service, and also to show the intrinsic lowness of rates, as compared with the cost of other light and fuels, as compared with the price in other cities, and with prices of other commodities which have steadily increased while the company's charges have been repeatedly reduced in the past 28 years and as indicated by the increase in the Company's business which has exceeded the rate of growth in population. The earnings of the business are discussed, and a detailed valuation submitted including a claim of 20% for overhead charges, computations of going value, paying over mains, working capital, and reproduction new without deduction for depreciation. A rate of return of at least 10% is claimed, especially in view of the Company's showing in exceptional efficiency and economy (one important item being the "Booster System" of high pressure transmission). Curves of costs and other data are given and tables of income, and of valuation.

31—Valuation.

VALUE OF A SMALL WATER POWER PRIVILEGE, *Electrical Review* $\frac{1}{3}$ page, July 12, 1913, p. 70.

This gives the engineering methods employed in appraising a water privilege acquired by a large hydroelectric power company in an Eastern state. The flow of water for each month of the year was determined, and the resulting horsepower taken at .8 of the theoretical amount. A value of the total horse-power per year of \$15,000 was found and this capitalized at 6 per cent gave \$250,000 as the value of the operated power.

MUNICIPALITIES

8—Municipalities.

MUNICIPAL BONDS, *Engineering and Contracting*, July 9, 1913, p. 36.

This states that municipalities which have issued bonds for public improvements or other purposes have had some little difficulty in the past six months in disposing of them, doubtless largely because of the present high cost of living, as investors who bought the bonds formerly glad to put their money into a 4 per cent municipal issue are now looking for greater returns. Several cities of late have tried the experiment of selling their securities direct to the public instead of to a bond buying house, and have found a very ready market in this way.

83—Municipal Ownership.

PUBLIC OWNERSHIP AND THE INCREASE OF TAXATION IN GREAT BRITAIN, by MARK OWEN. *Concerning Municipal Ownership*, 4 $\frac{1}{2}$ pages. July, 1913, p. 152.

This is an analysis of a report published in the *London Municipal Journal* of November 15, 1912, of taxation in the various towns of Great Britain, and the returns from the gas, water and electricity municipal plants, from which it appeared that taxation is increasing throughout the country and nevertheless that tax burdens are being materially relieved from the profits of municipal trading enterprises. The present writer states that when depreciation, and interest on the

loans are deducted from the average profit reported, 4 per cent, and when municipal book keeping methods are considered, the facts being that municipal committees in charge of public utilities frequently make it a rule to charge special expenses to the general account rather than to the specific plant occasioning these costs, and otherwise juggle the municipal accounts, the tax rate is shown to be in reality increased instead of lessened. There is evidence that the property of a municipal plant is very leniently assessed, whereas the tax returns to the municipality from privately owned plants would be substantial, and would be paid by the users of the service only.

1—Public Service.

GENERAL

THE PUBLIC AND THE PUBLIC SERVICE UTILITY, Editorial, *Journal of Electricity, Power and Gas*, July 5, 1913, p. 27.

This calls attention to the injustice done to public utilities by the attacks of agitators fostering mistrust and enmity on the part of the public, often encouraged as a popular feature by sensational newspapers, and some unscrupulous labor interests using this feeling to contribute to the success of strikes. The public should be stimulated to remember the fact that the fundamental interests of a city and its public utilities are identical or parallel, and a little consideration would prevent people from indulging in thoughtless criticism and condemnation the moment they experience an unavoidable accident or temporary inconvenience.

771—Inspection.

THE ELECTRICAL CODE OF THE CITY OF NEW YORK, 1912. 16mo, 212 pages.

This is issued by the Division of Electrical Inspection of the Department of Water Supply, Gas and Electricity, New York City, and comprises the rules and regulations for the construction, care, maintenance and operation of ducts, poles, conductors and other electrical appliances in the streets, public places, etc., or in any building in the city.

771—Inspection.

RULES AND REGULATIONS FOR ELECTRICAL INSTALLATIONS, Issued by the HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO. 12mo, 134 pages.

This is printed by order of the Ontario Legislative Assembly and gives with numerous illustrations, the rules and regulations for inside electrical installations and also signalling systems, wireless telegraph apparatus, electric railway work, etc., in the Province.

98—Public Relations.

COMMERCIAL AND AGRICULTURAL ORGANIZATIONS OF THE UNITED STATES. Pamphlet issued by the Department of Commerce and Labor, Washington, D. C. 125 pages.

This is a list of national, state and local commercial organizations, and similar agricultural organizations. The list of commercial organizations is stated to be a fairly complete one for towns of 2000 inhabitants and more, and in addition is given a concise statement of the functions of each organization, its dues, income, number of members and special interests served, enabling any business man to obtain a definite knowledge of the character of each trade body listed.

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No. 17

RATE RESEARCH



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OF THE
NATIONAL ELECTRIC LIGHT ASSOCIATION
120 WEST ADAMS STREET - - - CHICAGO

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CONTENTS		Page
COMMISSION DECISIONS		259
New York (1st D.)		259
COURT DECISIONS		264
Minnesota		264
New York		266
United States Supreme Court		266
COMMISSION REPORTS OF DECISIONS		266
New York (1st D.)		266
COMMISSION ANNUAL REPORTS		267
Nebraska		267
PUBLIC SERVICE LAWS		268
Illinois		268
REFERENCES		270
Rates		270
Investment and Return		270
Public Service Regulation		271
General		272

Rate Research

Vol. 3.

CHICAGO, JULY 23, 1913

No. 17

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COMMISSION DECISIONS

NEW YORK (1st D.)

139—Limitations to Service.

Complaint of FRANKEL BROTHERS against the NEW YORK EDISON COMPANY to Compel Auxiliary Service. Decision of the NEW YORK PUBLIC SERVICE COMMISSION (1st. D.), Dismissing the Complaint. May 27, 1913. 4 P. S. C. R. (1st D.), p. 272.

This decision was briefly abstracted in 3 RATE RESEARCH 182, at the time it was announced by the Commission. The full text is now received and contains a discussion of the whole subject of break-down service, and the conditions under which companies are properly required to furnish it. The question at issue is thus stated in the decision:

58—Terms and Conditions.

Frankel Brothers maintained and operated in their building a private electric plant, with which they produced the electricity required for that building. They made a contract with the defendant, The New York Edison Company, for "break-down service" to the complainant's private plant, and obtained a contract for this at the rate specified in the "break-down rider" contained in the defendant's published tariffs. Thereafter the complainants made a contract with the owners of the Phipps Tenements, located in the same block with the complainants' building, whereby the complainants supplied electric current to the Phipps Tenements at the rate of fifteen (15) per cent. lower than the schedule rates of the [Edison Company]. The Phipps Tenements had theretofore been supplied with electricity by the [Edison Company]. Thereupon the [Company] sent . . . a notice of cancellation of its contract . . . and intention to discontinue the service. . . .

Pending the Commission's decision, the service has been continued without interruption.

The Edison Company maintained that Frankel Brothers in running a wire from the electrical distribution system in their building to the Phipps Tenements, and so supplying numerous lamps and appliances located there, had violated the contract which provides

no change shall be made in the equipment, or in the type, size or number of lamps or other appliances connected therewith, that the current shall not be used except for the equipment scheduled by the company's inspectors; . . . without the previous written consent of The New York Edison Company. . . .

148—Competition

And the Company further claimed that a supply company should not be required to furnish an emergency or auxiliary service to a competitor, which would include any private electric plant supplying not only its owner, but also neighbors who purchase electricity from it.

Frankel Brothers contended that they are entitled to be supplied because break-down service furnished to any isolated plant is in reality service to a competitor, as the owner of a private plant serving only his own needs is a competitor of the supply company, and the selling of electricity to third parties outside of his premises introduces no new principles; and moreover that substantially the same service demanded in this complaint is now accorded to the United Electric Light and Power Company, another supply company.

The Commission decides that Frankel Brothers had violated the terms of the contract in supplying the Phipps Tenements without the written consent of The Edison Company, which was therefore within its rights when it gave notice of cancellation of the contract, and also that it would not be reasonable or proper to require one supply company to furnish stand-by service to another and to take over temporarily the duty of supplying a competitor's customers, particularly when such company would find it inconvenient or expensive to supply them.

Paragraphs which summarize the decision are:

617—Break-Down or Auxiliary Service

HELD,—that, when this Commission in 1908, required the electrical corporations to establish "break-down service," including under the one title supplemental and auxiliary service as well, the Commission realized that it would be possible for a customer to shut down his own plant when most expensive for him to operate and switch on the New York Edison service; but it was not contemplated that advantage would be taken of this action to require The New York Edison Company to supply emergency or auxiliary service to a competing company.

Among the provisions which The New York Edison Company has established in its published rate schedule is a so-called "break-down rider," designed for customers who have private electric plants on their premises. This service is described by the company as "a reserve, auxiliary or break-down" service, and the service connection is so arranged that a customer can receive only a speci-

fied quantity of electric current at any one time. The customer is required to pay at least \$30 per annum for each kilowatt of "maximum demand" desired by him and allowed by the company's "automatic maximum demand switch" installed on his premises. The charges for current are computed at the regular schedule rates paid by other consumers, but no additional payment above the maximum demand charge is made unless the bills at such rates exceed the maximum-demand charge; then the consumer's total payment is at the regular rates for current.

54—Minimum Charge.

The maximum-demand charge or minimum payment is fixed on the theory that the use of the company's current will not be continuous and may not even be frequent, but that sudden and heavy demands may be made on the company's service when an emergency arises, and that the consumer may draw upon the company's supply of electricity at his convenience, so far as time is concerned, and also without limit as to quantity within the maximum demand which he has requested and for which he pays a minimum charge.

617—Break-Down or Auxiliary Service.

The customer's use of the service is, therefore, not limited to occasions of emergency either by the terms of the contract, or by any system of regulation or control provided by the company; and it is not uncommon for the owners of private plants to suspend their operation during the night, on Sundays and holidays, and during the summer when little current is needed, or when it is inconvenient or expensive to operate the private plant, and draw upon the supply afforded by the company. . . .

56—Standard Riders.

The complainants had a contract with The New York Edison Company for "reserve, auxiliary and break-down service," based on the "conjunctional-service rider" of that company's published rate schedule. This "rider" authorized the combination of the electric service, under one contract, in the case of buildings not more than 100 feet apart, and under a common leasehold or ownership. After the making of their contract, the complainants undertook, themselves, to supply current procured in part under their contract with The New York Edison Company, to a building not under common leasehold or ownership with their own. HELD,—that The New York Edison Company was acting within its rights in giving notice of cancellation of the contract and discontinuance of the service, and had no authority or right, under its rate schedule as published, to do anything else.

627—Conjunctional Use

The "conjunctional-service rider" in the tariff schedule of The New York Edison Company, allowing consumption to be combined

for buildings located not more than 100 feet apart and under a common ownership or leasehold, plainly means that such combination will not be allowed under other conditions, and The New York Edison Company is obviously violating its published schedule of rates in furnishing electricity to any customer at rates determined by combining consumption in his building with the consumption in any other building located at a distance of more than 100 feet, or not owned or leased by him.

39—Limitations to Service

It seems reasonable to differentiate, for rate-making purposes, the electrical corporation doing a general business, the private plant selling electricity to other consumers in the same block, and the consumer who sells current to consumers outside the building or buildings which he owns or rents, from the person who merely manufactures current for his own use and that of his tenants, and P. S. C. L. §2, sub-div. 13, explicitly recognizes this line of demarcation.

149.1—Stock Ownership

Although nominally independent and superficially competing, the United Electric Light and Power Company and The New York Edison Company are both controlled by the Consolidated Gas Company through the ownership of stock and essentially are not "competing companies" in the usual meaning of the term, and it is the substance, rather than the form, which the Commission must consider in determining whether a certain requirement is reasonable or unreasonable.

228.1—Approval of Franchise

The complainants owned an electric plant, which supplied current to their own and an adjoining building. Both buildings were within the same block, and no street lines were crossed or invaded by wires, poles or conduits. It was urged that the complainants were required, under the Public Service Commissions Law, to apply to the Commission for a certificate of public convenience and necessity or for permission to engage in the business of supply electricity. HELD,—that the matter was not necessarily at issue in this proceeding, and no opinion is expressed in regard to it. . . .

114—

Mergers

Application of the CONSOLIDATED GAS COMPANY OF NEW YORK for Authority to Purchase the Stock of the NEW YORK AND QUEENS ELECTRIC LIGHT AND POWER COMPANY and the NEW YORK AND QUEENS GAS COMPANY. Decision of the NEW YORK PUBLIC SERVICE COMMISSION (1st D.) Granting the Application. May 20, 1913. 4 P. S. C. R. (1st D. N. Y.), p. 231.

The application was granted as to the purchase of the stock of the Gas Company by a unanimous vote, as to the purchase of the stock

of the Electric Light and Power Company by a divided vote, Commissioners Maltbie and Eustis dissenting from the action of the other three Commissioners.

The Consolidated Gas Company of New York, in making the application, showed that it had already obtained options on all the stock of the Gas Company, and on a majority of both the common and preferred stock of the Electric Company, and the Commission's permission is granted on the condition that if within one year from the date of the order any of the holders of the remaining stock of the Electric Company shall offer it for sale to the Consolidated Company, the latter shall purchase the same, paying not less than 76.13 per cent. of the par value for the preferred stock and not less than 55.64 per cent. of the par value for the common stock, these being the average prices at which these stocks have sold within the year preceding the application.

The territory involved, the Borough of Queens, is on Long Island and is the largest in area of the Boroughs of Greater New York, and the most sparsely built up, being composed of former villages widely separated, the only former city in the Borough being Long Island City, and for the past few years the population there has increased at a more rapid rate than in any other part of New York. The arguments for the acquisition of the stock of the Gas Company are summarized as follows: p. 241.

1. That the service would be improved and the efficiency of operation increased.
2. That the plant and facilities of the Queens Gas Company would be made adequate to the needs of the rapidly growing population in the area of supply.
3. That the plant of the Consolidated system could be used in case of accident to prevent interruption of service.
4. That, without the assistance of the Consolidated Gas Company, the Queens Company would have great difficulty, and perhaps find it impossible, to finance the cost of improvements and extensions.
5. That the Consolidated Gas Company would secure a market for gas which it manufactures. . . .

The claims of the company in favor of the acquisition of the Electric Company's stocks are thus summed up:

1. That efficiency of operation would be increased and duplication of investment avoided.
2. That the plant and facilities of the electric system would be made adequate to the needs of the rapidly growing population in the area of supply.
3. That the plant of The New York Edison (electric) Company could be used in case of accident to the Queens system to prevent interruption of service.

4. That, without the assistance of the Consolidated Gas Company, the Queens Electric Company would have great difficulty to finance the cost of improvements and extensions. . . .

The decision discusses these points, and the granting of the application is based on the merits of these arguments, the conclusion being thus stated:

The Consolidated Gas Company asked permission to purchase the stock of a gas corporation and an electric corporation, both of which were operating in the same territory, in which the petitioner had not hitherto been a factor. Objection was made that gas and electric corporations furnished essentially competing services, and therefore should not be permitted to come under the same ownership. HELD,—that, while gas and electric companies may have been in the past considered as rival companies, today such is not the case, except in small communities, and even there electricity for lighting is rapidly becoming as much used as gas, and is largely used in place of gas for street lighting. . . .

149—Holding Companies

In the dissenting opinion is given a review of holding companies, with citations of disapproval of their operations by authorities, including the report of the Railroad Securities Commission, of which President Hodly of Yale was chairman, and

148—Competition

an argument in favor of competition between gas and electric utilities, which have diverse plants and facilities and do not involve duplication of properties in the streets.

COURT DECISIONS MINNESOTA

59—Measurement of Energy.

WHERLAND ELECTRIC CO. v. BURMEISTER. Suit to Compel Generating Company to Stand the Current Losses in Transformers. Decision of the SUPREME COURT OF MINNESOTA, that the Transformed Current Only May Be Charged for. June, 13, 1913. 141 Northwestern, 1117.

This is an appeal from the decision of the District Court, by Burmeister, who owns and operates an electric generating plant at Redwood Falls, Minn. (pop. 1, 666), and a substation at the outskirts of the city, from which by contract he delivers electricity wholesale to the Wherland Electric Company. The contract calls for the measurement of current at the substation, but fails to specify whether such measurement should be made before or after passing through the transformers. The Court rules that only the amount received by the purchaser may be billed to him by the producer. The essentials of the decision are:

The precise question in controversy is stated in the findings of the trial court substantially as follows: Defendant owns and operates the substation at which he delivers to plaintiff the electricity called for by the contract. Transformers are located at this station, and also a switchboard or device for measuring the current passing through the same. The current comes from the power plant of defendant at a definite voltage, but in passing through the transformers a certain amount of it is lost. The switchboard is placed in position for measuring the current as it enters the station, and defendant charges the [Wherland Electric Co.] for the quantity so delivered. It is the contention of the [Company] that it is liable under the contract only for such volume of electricity as is actually delivered after its passage through the transformers, while defendant contends that the quantity for which [the purchaser] is liable is properly measured by the volume delivered from the generating plant to the substation before it passes through the transformers; and, as remarked by the trial court, there is a loss of current at the substation, and the dispute narrows down to the question, which party must, under the contract, stand the loss.

The trial court applied the general rule that a vendor, who agrees to sell and deliver specific personal property of a certain kind or prepared in a certain way before delivery, must stand any expense or loss incurred by him in preparing the property for delivery, and held that the loss of electricity occasioned by the passage through the transformers at the substation must fall upon defendant. In this view of the case we concur. Defendant agreed by the contract to sell and deliver to [the Wherland Electric Co.] a specified volume of electric current. The contract contains no reference to a loss naturally to occur at the substation, and no sufficient reason appears to justify the conclusion that the parties contemplated such loss in entering into the agreement, and that it should be cast upon [the purchaser.] The contract calls for the payment of electric current delivered at the substation, and upon its face [the purchaser] can be chargeable with only such volume thereof as is actually delivered and received. While the contract further calls for the measurement of the current at a switchboard to be placed at the substation, no provision appears therein justifying the conclusion that the parties understood or intended that this measuring device was to be so placed that the current would be measured before entering the transformers. Under the contract, properly construed, it should have been so placed as to measure the actual quality delivered to [the Wherland Electric Co.]

It appears from the evidence and findings of the court that it could be placed on the delivery side of the transformers, but that the measurement at that point is attended with extreme dangers, not incident to the measurement as the current enters the station. It seems clear that the situation called for some express contract

stipulations covering the matter, and the Court cannot well say that the general custom of measuring from the low tension side of the station entered into or formed a part of the agreement and understanding of the parties. The record contains no conclusive evidence that the parties discussed the subject of loss of current at the substation, at the time of or before the contract was entered into, and their rights must be measured in the light of the rule of law referred to, and the actual stipulations embodied in the written agreement.

NEW YORK

38—Taxation.

People ex rel QUEENS COUNTY WATER CO. v. STATE BOARD OF TAX COMMISSIONERS (CITY OF NEW YORK INTERVENER). Suit to Reduce Tax Assessment. Decision of New York Supreme Court Appellate Division, Annulling Tax Commissioners Determination as excessive. May 22, 1913.

The Court uses the net-earnings rule in valuing the property of the Water Company, there being indications that the Tax Commissioners went largely by this method in fixing the amount of the assessment. The Court rules that the estimate of net earnings by the Commissioners was too large by reason of their refusal to include in the total value of the plant on which a return should be allowed, the value of a large tract of land which the company had purchased, and held as a drainage area. The Court held that in as much as all the company's water was pumped from the earth, this land was necessary to place its supply beyond any liability of failure or contamination, to prevent others from interfering with it, and to provide for the present and probable future needs of the company.

UNITED STATES SUPREME COURT

3—Investment and Return

THE MINNESOTA RATES CASE. The Text of this decision (see 3 RATE RESEARCH 179 and 195) is reported under the title Simpson V. Shepard. 33 Supreme Court Reporter 729.

253—COMMISSION REPORTS OF DECISIONS.

Reports of Decisions of the NEW YORK PUBLIC SERVICE COMMISSION (1st. D.) for the month of June, 1913. Volume 4, pages 203-324.

This is No. 5 for the present year of the monthly pamphlets of the decisions of this Commission, these monthly reports being paged continuously as they will appear in the final bound volumes of decisions. The following matters of interest to public service companies may be found in this issue:

	Page
Decision of New York Supreme Court in Kings County Lighting Case	viii

Court reverses Commission's decision as to valuation.

(See 3 RATE RESEARCH 164.)

Four New Laws Amending the Public Service Commissions Law; In Relation to Standards for Measurement of the Heating Power of Gas; as to Stock Yards and as to Steam Heating Corporations, Conferring Similar Jurisdiction as over Other Public Utilities; and as to the Minutes of the Commission, to be Considered Prima Facie Evidence of its Proceedings.....

xx

Application of the Consolidated Gas Company of New York for Authority to Purchase the Stock of the New York and Queens Electric Light and Power Company and the New York and Queens Gas Company

231

Granted.
(See 3 RATE RESEARCH, 262.)

Complaint of Frankel Brothers against the New York Edison Company to Compel Auxiliary Service.....

272

Dismissed.

(See 3 RATE RESEARCH, 182 & 259.)

259—COMMISSION ANNUAL REPORTS

FIFTH ANNUAL REPORT OF THE NEBRASKA STATE RAILWAY COMMISSIONS, for the Year Ending November 30, 1912. 385 pages.

The work of this Commission has been concerned chiefly with the railroads, and this volume contains no electric rate cases. A discussion of the railroad valuation work done up to the present by the Commission is given, and a summary of the results of physical valuations of the properties of electric street railways, express companies, and telephone and telegraph companies. Some cases of general interest to electric companies include decisions respecting issues of stocks and bonds and increase of rates by telephone companies, consolidation of two corporations and the reorganization of a gas company.

3—Investment and Return

Another case containing pertinent rulings is that of the complaint against the Lincoln Traction Company, p. 94, which led to a complete investigation and appraisal of the Company's business, an order for changes in its accounts to make them conform to the Commission's rules and orders, an approval of the zone system of fixing rates of fare, an increase of the depreciation fund from 5 per cent. to 5½ per cent. of the value of depreciable property, to cover current maintenance and repairs and provide for depreciation reserve, and an increase of fares from six tickets for 25 cents to a straight 5 cent fare. A discussion of proper inclusions in capitalization is given and the policy announced of allowing a sufficiently liberal rate of return to attract investors.

612.2—Large Power

The Company claimed that the rate of 2½ cents per kilowatt-hour which the Commission had ordered the Company to charge to the

light and power department for all current taken, is much in excess of the actual cost, and therefore produces a profit to the railway department not legitimately earned by it, thus making a showing of an adequate return which is not in fact present. But the Commission refused to alter this charge.

268—

PUBLIC SERVICE LAWS**ILLINOIS PUBLIC UTILITIES COMMISSION LAW**

On June 30th, 1913, Governor Dunne signed House Bill 907 establishing a Public Utilities Commission for the State of Illinois. This law does not take effect until January 1st, 1914. During the previous week, however, the Governor signed Senate Bill 538, An Act to Authorize Cities to Acquire, Construct, Own and to Lease or Operate Public Utilities, which is effective on July 1st, 1913, and should be considered together with the Public Utilities Law.

In drafting the Illinois bill, an attempt was made to exclude from the provisions of the Act all cities of over 20,000 inhabitants, and cities under 20,000 inhabitants by referendum could remove themselves from the general provisions of the bill and were given special privileges to regulate all utilities within their own jurisdiction. These provisions were included in a separate article and were stricken out by the House in its consideration of the bill.

The Illinois Public Utility Law as it now stands upon the statute books is a particularly drastic measure. The Act more nearly follows the California law than that of any other State, although occasionally the New York Law is used as a basis.

The Act gives the impression that no attempt was made to consider public service regulation in a broad and fair minded way but rather to inflict upon the utilities as severe regulation as was possible without any of the compensating features, such as the indeterminate permit and the regulation of municipal utilities, as are found in other laws, notably New York, Wisconsin and Indiana.

In almost every instance explicit directions are given to the Commission, and the power over corporations is more nearly absolute than in any other law.

The following are the main provisions of the law.

General powers of the Commission over common carriers, gas and electric, water, street railway, interurban, telephone, telegraph and express companies:

The Commission has complete control over the management of the company, over rates and service, accounts, capitalization, full inspection and examination is provided for, and complaints may be heard either upon the instance of a single person or corporation or upon the initiative of the Commission itself.

The law is very indefinite upon the rights of municipal authorities, as even the right to issue franchises is merely implied and not defi-

nitely stated in the Act. Local authorities have no power to regulate service, or to order additions and improvements. However, under the municipal ownership bill municipalities can construct, lease or operate utility plants without the approval of the State Commission, subject only to a referendum vote, both in the matter of establishing the plant and in providing the necessary funds. The right of municipal operation where it exists today is confirmed.

The utilities must comply with the Commission's orders, have just and reasonable rates and no discrimination, file complete schedules of rates, give safe and adequate service, report all accidents and file reports and give information and answers to questions.

The utilities must receive approval before exercising franchises, beginning to sell or construct, and before issuing stocks and bonds, and selling or buying or leasing utility property or changing rates. The provisions relative to the issuing of stocks and bonds are particularly drastic, as the Commission is given power to approve all or part or none of such bond issues. A fee of 10 cents per hundred is charged and the Commission is required by the law to provide a means of identification of all bonds or stocks so approved.

As previously noted, certificates of convenience and necessity only apply to private corporations, and municipal corporations may compete with existing private plants without State approval.

The public under the law must not seek discriminatory rates. They can make complaint individually as to rates and service, or as to the needs of extensions and additions and may apply for tests of all measuring instruments. They may be heard in any complaint in person or by attorney, and may submit to the Commission any evidence. Any party to a proceeding may apply for a rehearing, and bond and stockholders may also apply for such rehearing. Enforcement penalties are severe. All parties to a proceeding must apply for all statutory rehearings before complaint is made to the courts, and then the rules and regulations of the Commission are considered as *prima facie* reasonable, and the Appellate Court can only set aside if the decision is against the weight of evidence, or the Commission found to be without jurisdiction. The Commission findings of fact are to be considered *prima facie* reasonable, and the burden of proof is upon the appellant. The Courts' suspension of the orders of the Commission does not act as a stay without notice to the Commission or certificate by the Court that great or irreparable damage would otherwise result. In suspending rates fixed by the Commission, the utility must give bond and the difference in rates may be impounded by the court.

(Note. An abstract of this law may be found in the *Electric Railway Journal*, July 12, 1913. p. 75; and a editorial comment in the same journal of date of July 19, 1913. p. 92.)

REFERENCES RATES

41—Cost of Service.

THE LIGHT, HEAT AND POWER BUSINESS OF CENTRAL STATIONS, by NEWTON HARRISON. *The Central Station*, 3 pages. July, 1913, p. 1.

This points out the various elements to be calculated in computing the cost of service and the consequent determination of proper rates, as the service charge, energy charge, consumer charge, maximum demand charge and rate differentials, with the necessary concessions to large power uses in order to obtain their business, and eliminate the less economic isolated plant. The increasing demand for electricity in all lines of use, cooking, heating as well as lighting of every description, is not dependent on reduced cost alone, but also on convenience, safety and labor saving. Every advance in civilization is accompanied by demands for better conditions for labor, and higher standards for comfort of the masses, and it is apparent that because of such considerations, electricity must ultimately supersede gas, as the latter replaced oil, coal and other fuels.

41—Cost of Service.

ELEMENTS OF RATE MAKING, by J. T. JENNINGS. *Puget Sound Electric Journal*. April, 1913.

This is a discussion of rate making, which was begun in the above mentioned *Journal* and is being given serially, having now appeared in four numbers, and comprises considerations of, and instructions for carrying out in the rates, the correct principles of the cost of service, including definitions of fixed charges, operating expenses and maximum demand, with estimations of the effects of load factors, long hours of use, on peak and off peak service, and an indication of proper rate differentials between light and power customers as limited by the value of the service to the latter.

61—Character of Service.

ELECTRICITY IN ZINC MINING, illustrated article, *Electrical Review*, 6 pages. July 19, 1913, p. 111.

The extension of transmission lines to the zinc mines of the Illinois and Missouri fields has resulted in the general adoption of electric drive by mines in these territories, resulting in considerable savings. Motor applications and power requirements of zinc-mining machinery are discussed in this article. Data on six such installations are given.

61—Character of Service.

MOTOR DRIVE IN TANNERIES, illustrated article, *Electrical Record*, 5 pages. July, 1913, p. 28.

This states that while as yet few tanneries are completely equipped electrically, a large number have installed partial equipments to meet the requirements for additional capacity. The various processes in leather manufacturing, the machinery used for them and the motors required to run it are detailed, with several illustrations of Ohio and Massachusetts plants. A page of data on the motor equipment of a Salem, Mass., leather manufactory is given which uses an aggregate of $174\frac{1}{4}$ horse-power with a load factor of 47 per cent.

INVESTMENT AND RETURN

36—Depreciation.

DEPRECIATED VALUES AS A BASIS FOR RATE MAKING; A REVIEW OF THE SUPREME COURT DECISION AND SOME SUGGESTIONS AS TO ESTI-

MATING ACCRUED DEPRECIATION, editorial, *Engineering and Contracting*. July 16, 1913, p. 58.

This points out that in presenting their evidence in the Minnesota rate cases, where the Court decided "When an estimate of value is made on the basis of reproduction new, the extent of existing depreciation should be shown and deducted," the railroads not only failed to submit a claim for development cost which usually more than offsets accrued depreciation, but omitted to distinguish between "functional depreciation" and natural depreciation, and therefore the Court took the high estimate of 30 per cent. for accrued depreciation on buildings and rolling stock. This writer states that functional depreciation can not be fixed by either inspection or the use of life tables, as it depends only on obsolescence and inadequacy, and may only be determined fairly by comparing the economic efficiency of the given machine with the economic efficiency of the most modern economic machine required to perform the given service, since a good generator properly maintained, might last a century or more, so far as natural depreciation is concerned. Therefore this decision leaves unsettled by the Supreme Court such important questions as, shall depreciation be estimated by (1) inspection, (2) straight line formula, (3) sinking fund formula, or (4) unit cost formula? And shall functional depreciation be treated differently from natural depreciation?

PUBLIC SERVICE REGULATION

2—Public Service Regulation.

THE UNQUALIFIED COMMISSIONER, editorial, *The Electric World*, July 19, 1913, p. 114, and COMMISSION APPOINTMENTS IN NEW YORK, editorial, *Electric Railway Journal*. July 19, 1913, p. 91.

These comment on the recent appointment by Governor Sulzer of a man who has been a locomotive engineer for the past twenty years, and of a hotel proprietor, to the New York Public Service Commission (2nd D.), and states that though these appointees' moral qualifications may be of the best, and their mentality of a high order, yet it is unlikely that their limited experience can have given them the qualities necessary in a Commissioner, a broad general knowledge of affairs, ripe judgment, the ability to deal with questions of law, engineering and business. It is stated the objections suggested are not restricted to these occupations alone, but would apply equally to any other business man of a correspondingly narrow experience.

261—Public Service Bills.

PENNSYLVANIA UTILITIES LAW, editorial and article, *Electrical World*, 1½ pages. July 19, 1913, p. 113 and p. 120.

The article gives a brief summary of the provisions, and the editorial comment notes some of the main features, of the new bill recently passed in Pennsylvania, and now awaiting the signature of the Governor. It is an improvement over the Illinois law, in that it grants at least a limited jurisdiction over municipal plants, namely over their accounts and reports and their contracts with the municipalities, and also requires for new municipal plants, certificates of convenience and necessity. It provides for a sliding scale of rates and dividends, and gives very strong control over railroad crossings, and crossings of pole or transmission lines of every character. It calls for an unusually large Commission—seven members.

268—Public Service Laws.

THE PUBLIC UTILITIES ACT OF MAINE, *Electrical Review*, 1 paragraph. July 19, 1913, p. 127.

The new Public Utility Law of Maine, briefly abstracted in 3 RATE RESEARCH 127, will not become operative at once on account of the fact that petitions have been filed with the Secretary of State asking for a referendum on the measure. A vote may be taken in November of this year or later, providing the Governor calls a special election; otherwise the measure cannot be voted upon until September, 1914, when the regular general election takes place.

GENERAL

522.2—Measurement of Demand by Graphic Instruments.

THE GRAPHOMETER, *Electrical Review*, $\frac{3}{4}$ page. July 19, 1913, p. 140, and *Electrical World*, July 19, 1913, p. 153.

These describe, with an illustration, a new device based upon several different inventions, for measuring the actual demand for a definite time interval, it may be set for 5, 10, 15, 20, 30 or 60 minutes, and recording it on a chart so that it is possible to see at a glance the maximum demand, the time it occurs, and its relation to other load conditions during the month. This graphometer, which includes a high grade clock mechanically interlocked with the measuring element, is extremely simple, and may be applied to any watt-hour meter regardless of the make, type or capacity, and this combination thereupon shows the total consumption and maximum demand for the month and the time it occurs.

143—Co-operation.

CO-OPERATION WITH THE ISOLATED PLANT, editorial, *Electrical World*, July 19, 1913, p. 113.

This states that progressive central station managers are supplying service to isolated plants under contracts covering the summer months only, when the central station's lighting load is at its minimum, and the operation of the isolated plant is extra expensive because of the absence of their steam heating demand, and their high cost of labor per kilowatt-hour generated. This co-operation is therefore profitable to both.

91—Promotion and Growth of the Business.

POWER FROM WASTE HEAT, by WALTER C. HAMM, *Daily Consular and Trade Reports*, issued by the BUREAU OF DOMESTIC AND FOREIGN COMMERCE, Washington, D. C., $\frac{1}{2}$ page. June 6, 1913, p. 1209.

This is a report of a new municipal generating plant at West Hartlepool, England, with two turbo-generators, each of 1,500 kilowatts, which will be driven by exhaust steam from the furnace blowing engines of an iron manufactory adjacent to the electric station. It is stated that expenditure for coal will be practically eliminated, and as the present yearly coal bill is about \$20,000 and it is estimated that the consumption of current will largely increase under the cheaper rate now possible, the ultimate saving by the use of waste heat will be very considerable. In return for their exhaust steam the iron company will receive free the supply of electric current needed at its works. Should the supply of exhaust steam not be available, either through a break-down of the blowing engines or through the iron works being idle, a supply of high pressure steam will be obtainable from the iron company. The old generating station will be maintained as a stand-by, and also as a town sub-station where the current from the new station will be transformed to the voltage required for distribution to the town.

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RATE RESEARCH



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CONTENTS		Page
RATES		275
Consolidated Gas, Electric Light & Power Co.		275
COMMISSION DECISIONS		275
New Jersey		275
Interstate Commerce Commission		277
COURT DECISIONS		277
United States Supreme Court		277, 278, 279
Kentucky		279
Michigan		280
Missouri		281
North Dakota		282
PUBLIC SERVICE LAWS		282
District of Columbia		282
REFERENCES		284
Rates		284
Investment and Return		285
Public Service Regulation		287
General		288

Rate Research

Vol. 3.

CHICAGO, JULY 30, 1913

No. 18

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES

72—Rate Schedules

In the rate schedules of THE CONSOLIDATED GAS, ELECTRIC LIGHT AND POWER COMPANY, of Baltimore, Md., given in 3 RATE RESEARCH 199, an error was made in the tabulation of the gas rate which resulted in representing it as a block rate instead of a step rate. The gross rate, as stated in the former notice, is 90 cents per thousand, the system of discounts allowed is a combination of quantity and prompt payment discounts as follows:

Rate

90 cents per thousand cubic feet.

Discounts

10 cents per thousand on consumption of less than 50,000 cubic feet per month
15 cents per thousand on total consumption of 50,000 cubic feet per month or over, up to 100,000
20 cents per thousand on total consumption of 100,000 cubic feet per month or over

making the net rate as follows:

80 cents per thousand for consumption of less than 50,000 cubic feet per month
75 cents per thousand for total consumption when it amounts to 50,000 cubic feet per month or over, up to 100,000
70 cents per thousand for total consumption when it amounts to 100,000 cubic feet per month or over

All these discounts apply only when bills are paid within 10 days.

COMMISSION DECISIONS

NEW JERSEY

132—Protection from Competition.

Application of the EASTERN TELEPHONE AND TELEGRAPH COMPANY for Approval of Two Ordinances Granting Permission to Construct Telephone Lines in Cape May County and in the Borough of Avalon. Decision of the NEW JERSEY BOARD OF PUBLIC UTILITY COMMISSIONERS, Denying the Application, May 19, 1913.

EDITORIAL NOTE.—All indented matter is direct quotation.

This Commission consistently upholds the right of an existing public utility to protection from competition. In the present case it says:

132.1—Natural Monopolies.

The general considerations in favor of unified and comprehensive operation of public utilities, as against rival service in the same locality, are perhaps stronger in the case of telephone service than in the case of other public utilities. To the consumer of gas, water or electric current it usually matters but little, directly, whether his neighbors take service from the same source of supply. In telephone service, however, intercommunication is the heart of the matter. Subscribers to rival exchanges in the same community are separate from each other, except under the penalty of subscribing to both companies. The communication of the Merchants' Association of New York addressed on June 20, 1905, to the Board of Estimate and Appointment in opposition to the grant of a franchise to any independent company in that city, puts the matter in a nutshell, where it says:

"Competition in telephone service does not offer a choice of benefits, but compels a choice of evils—either a half service or a double price." . . .

132.8—Unnecessary Duplication.

The unnecessary duplication of plant in competitive telephone service, whether proportionately greater or less than in the case of other public utilities, is another weighty consideration against competitive service.

The Board, therefore, is strongly of opinion that as a general proposition competitive telephone service is not necessary and proper for the public convenience, and does not properly conserve the public interests. . .

226.3—Joint Service.

The Board has already put on record its conviction that the State by statute should require competing telephone companies to afford physical connection for proper toll charges over their respective lines. If this were done the refusal to allow a rival company to enter a place already served by another company would avoid the waste of duplicating plant and would secure the widest area of service possible. The Railroad Commission of Wisconsin in a case decided October 10th, 1912, . . . ordered such physical connection between two telephone companies and fixed the toll charges for such connection. . .

The Board hereby denies and withholds its approval of the aforesaid ordinances, and each of them, and

HEREBY DISMISSES the pending applications, and each of them.

INTERSTATE COMMERCE COMMISSION**241—Commission Investigations.**

Complaints against the Railroads of New England, Alleging Unsatisfactory Service and Excessive Rates. Decision of the INTERSTATE COMMERCE COMMISSION, Prescribing Practices and Rates. June 20, 1913. Opinion No. 2384. 57 pages.

This is a report of the Commission's investigation of the rates, classifications, regulations and practices of the New England carriers, comprising the Boston & Maine, and New Haven Systems. It composes a summary and discussion of the facts found as to their service, rates and finances, and a statement of conclusions and principles to be applied in remedying the conditions.

97—Collateral Business of Utilities.

The various transactions which have led to complaints of stock watering are described, and the Commission decides that the New Haven should divest itself of its trolley lines, and it is stated that the facts strongly suggest that increased net income for the Boston & Maine should be secured by a reform in expenditures rather than by an increase of rates.

The following main conclusions are announced:

In the opinion of the Commission the following propositions lie at the foundation of all adequate regulation of interstate railroads: (a) Every interstate railroad should be prohibited from expending money or incurring liability or acquiring property not in the operation of its railroad or in the legitimate improvement, extension, or development of that railroad. (b) No interstate railroad should be permitted to lease or purchase any other railroad, nor to acquire the stocks or securities of any other railroad, nor to guarantee the same, directly or indirectly, without the approval of the federal government. (c) No stocks or bonds should be issued by an interstate railroad except for the purposes sanctioned in the two preceding paragraphs, and none should be issued without the approval of the federal government.

COURT DECISIONS**UNITED STATES SUPREME COURT****228—Franchises.**

CITY AND COUNTY OF DENVER et al., Petitioners, v. NEW YORK TRUST COMPANY, DENVER UNION WATER COMPANY et al. On Certiorari to Review Decrees Affirming Injunction of Construction of Municipal

Water Plant. Decision of the UNITED STATES SUPREME COURT, Reversing the Decrees, and Sustaining the City's Actions. May 26, 1913. 33 Supreme, 657.

138—Contracts.

This important and hard fought case was given in a brief abstract in 3 RATE RESEARCH, 190, at the time it was decided. It should be noted as another strong indication of the need for the protection afforded to companies by the indeterminate permit, as this decision states in terms that subjecting a water company whose franchise has expired to the alternative of accepting an inadequate price for its plant or of having its value ruinously impaired by the construction and operation of a municipal plant, does not take property without due process of law, contrary to U. S. Const., 14th Amend., where the municipality is not only under no legal obligation either to renew the franchise or to purchase the plant, but is free to construct and operate its own plant.

The main points of the case are that The Denver Union Water Company has operated under a franchise granted in 1890, limited to 20 years, with the stipulation that upon its expiration the city might either purchase the plant at its appraised value, or renew the franchise on certain stated terms for another twenty-year period, but neither course was made binding upon the city. In 1907 the city passed an ordinance providing for an immediate appraisal of the plant, and the fixing of a schedule of water rates for the next twenty-year period. The appraisers returned a valuation of \$14,400,000 in 1909, but failed to fix the rates. In 1910 the city adopted a charter amendment, creating a public utilities commission, voted a bond issue of \$8,000,000 for a municipal water works, and \$7,000,000 thereof was offered the water company for its plant. This offer the company refused and secured in the lower courts temporary injunctions to restrain the city from constructing a municipal plant or issuing bonds for the same. The Supreme Court reverses these decrees, and sustains the city's contention, that the franchise had expired and the rights of the company had ceased entirely without obligation on the part of the city to renew.

An editorial discussion on the several points of this decision, and on the history of the case, is given in the *Engineering News*, 1 $\frac{1}{4}$ pages, July 24, 1913, p. 177.

UNITED STATES SUPREME COURT

228—Franchises.

DETROIT UNITED RAILWAY COMPANY, Plaintiff in Error, v. CITY OF DETROIT. To Review Decrees that the Company's Franchises had

Expired. Decision of the UNITED STATES SUPREME COURT, Affirming Decrees. May 26, 1913. 33 Supreme, 697.

This decision affirms those of the lower courts that the company's franchises have expired, and that it must conform to the resolutions passed by the City ordering the Company to pay a temporary rental of \$200 per day to the City, or remove its property from the streets.

UNITED STATES SUPREME COURT

65—Discrimination.

PORTLAND RAILWAY, LIGHT AND POWER Co., Plaintiff in Error, v. RAILROAD COMMISSION OF OREGON. Alleging that Rates of Fares on Electric Railway Prescribed by Commission are Confiscatory. Decision of UNITED STATES SUPREME COURT, Sustaining Commission's Order. June 10, 1913. 33 Supreme 820.

The decision in this case turns on the point of discrimination alone, the complaint against the Company having established that a fare of 10 cents was charged between Portland and Milwaukie, without privilege of transfer, while the fare between Portland and Lents, a distance nearly a mile greater, is 5 cents, with privilege of transfer. The Company did not produce evidence of any difference in any circumstances or conditions in the rendering of the two services to justify the difference in rates of fare. The decision admits that the rate of fare complained of is not unreasonable when compared with charges made by other railway companies for similar services, but finds that it is unjustly discriminatory as compared with charges for similar service by this company, and results in undue preference to one locality and undue prejudice to another which is contrary to the law. The Court says that the Company's allegation that the rate of fare ordered is confiscatory is not substantiated, for the reason that it did not offer evidence sufficient to show the value of its property, or of the different divisions thereof, or its income or expenditures or profits or loss, or the cost of transporting passengers on the respective divisions.

KENTUCKY

228—Franchises.

GATHRIGHT et al. v. H. M. BYLLESBY & Co. et al. On motion to Dissolve Injunction of Two Ordinances Granting Franchises to H. M. Byllesby & Co. Decision of KENTUCKY COURT OF APPEALS, Dissolving Injunction May 28, 1913. 157 Southwestern, 45.

This decision closes some long drawn out litigation and secures to H. M. Byllesby & Co. the ownership of the Kentucky Electric Company, which one of the ordinances in question permitted it to acquire,

and the consequent control of all the gas and electric companies in Louisville. A franchise to supply natural gas from the fields in West Virginia, is also included in the ordinances sustained by this decision.

138—Contracts.

The contract established by the ordinances amply protects the rights of the public by detailed specifications as to rates and service, right of city to purchase properties at the expiration of the franchise term, etc. Not only will the gas rates be greatly reduced, but also the new electric rates both for domestic lighting and for street lighting will be substantially lower than are now in force. The present maximum rates are, for lighting, 9 cents per kilowatt-hour, and for power 4 cents per kilowatt-hour. Under the contract with the Byllesby company a sliding schedule is provided for, the maximum rate for lighting being 7.6 net for consumption under 500 kilowatt-hours, and 4.75 cents net for all in excess of 500 kilowatt-hours. The street lighting prices are reduced from \$67 per 4 ampere magnetic arc lamp per year, to \$60 (where transmission is underground) and \$56 (overhead transmission).

331.1—Amount of Investment for Rate Making Purposes.

Among other provisions of the ordinances granting the franchises is the following:

“Third. The city of Louisville reserves the right to make reasonable regulations of rates for the use of electricity and for lamps for both private consumers and municipal purposes, and the capital stock or bond issue of said company shall not be considered in fixing said rates.”

A review of the history and present situation of the gas and electric interests in Louisville is included.

MICHIGAN**131—Protection from Confiscation.**

DETROIT AND MACKINAC RAILROAD COMPANY V. MICHIGAN RAILROAD COMMISSION et al. Suit to Enjoin as Confiscatory Freight Rates Established by the Commission. Decision of FEDERAL COURT, WESTERN DISTRICT OF MICHIGAN, Denying an Injunction, March 22, 1913. 203 Federal, 864.

This decision is specifically that the complaint having been decided adversely by the court of first discretion, and on appeal by the Michigan Supreme Court, the Railroad Company can not now try the same controversy over again in this court. The questions here discussed and decided are those of the legal aspects of the Commission's jurisdiction, distinguishing between legislative and judicial functions, and defining the limitations of the powers of courts as to rate making.

In this connection is given the following in regard to reasonable versus non-confiscatory rates:

122—Just and Reasonable Charges.

The problem whether a rate or a return is reasonable is a problem with a double aspect, legislative and judicial. From the legislative standpoint, that rate or return is reasonable which is not unfair to the shipper and at the same time is large enough to meet the demands of legislative policy in promoting and encouraging railroad investments. The Legislature, or the legislating administrative board, takes into account the risk involved, the community service rendered, past or prospective unprofitable periods, and all other elements tending to determine what a wise policy may be, and it may well fix a rate contemplating a return much beyond the legal rate of interest upon the money invested; in other words, from this point of view, a very liberal return may be "reasonable."

On the other hand, it cannot be judicially said that a rate is unreasonable unless it yields less than that minimum return which the invested capital has a right to demand; in other words, that increment which is so inherently incidental to the investment that destroying the increment is a confiscation of the property. Only then, from the standpoint of a court, does a rate become "unreasonable"; and, finding this word "unreasonable" used in this statute with reference to the action of courts, which can have no other viewpoint, the word must receive this construction.

MISSOURI

391—Reports of Companies.

STATE EX REL. FRANKLIN COUNTY V. TIBBE ELECTRIC CO. Suit to Recover Penalty for Failure of the Company to Report to Secretary of State as Required by Law. Decision of the Missouri Supreme Court, that the Company had Violated the Law. May 31, 1913. 157 Southwestern 635.

Every incorporated company, other than railroad, building and loan, and insurance companies, and such corporations as are exempt from taxation by the laws of this state, * * * whose capital stock is divided into shares, shall, annually, on the first day of July, report to the Secretary of State the location of its principal business office, the name of its president and secretary, the amount of its capital stock, both subscribed and paid up, the par values of its stock and the actual value of its stock at the time of making said report, the cash value of all of its personal property and of all its real estate within this state on the first day of June immediately preceding, and the amount of taxes, city, county, and state, paid by the corporation in this state for the year last preceding the report.

The penalty for failure to make above report within 60 days of July 1 in each year is a fine of not less than \$50 and not more than \$1,000, for each offense, and each succeeding 30 days of such failure constitutes a separate offense.

NORTH DAKOTA

8—Municipalities.

KERLIN v. CITY OF DEVIL'S LAKE et al. Suit to Set Aside as Invalid Special Election Authorizing Municipal Electric Plant. Decision of NORTH DAKOTA SUPREME COURT, sustaining the Election Except as to Amount of Bonds. April 26, 1913. 141 Northwestern, 756.

This is a suit by an owner of an existing electric plant to have declared void and illegal an election which was held to increase the debt limit and issue bonds in the sum of \$33,000 for the purpose of establishing a municipal light plant. The election is attacked on the ground that it was not held in accordance with the express provisions of the law dividing the city into four election wards or precincts, with voting places in each precinct, but was held at one location—the fire hall centrally and conveniently located in the city. The Court rules that in spite of the specifications as to the place and manner of voting contained in the legislative act, the election is nevertheless valid, as it has been the custom of the city to hold all special and school elections at this one voting place, during all the years since the city was divided into four wards. It is ruled, however, that another election must be held to decide the amount of the bonds to be issued, as this point was not submitted as a matter entirely separate and distinct from the question of making the bond issue.

268—

PUBLIC SERVICE LAWS

DISTRICT OF COLUMBIA PUBLIC UTILITIES COMMISSION LAW

PUBLIC UTILITY ACT FOR DISTRICT OF COLUMBIA. A summary of the Law establishing a Public Utilities Commission for the District of Columbia, which was signed by President Taft March 4, 1913. *Electric Railway Journal*, 13¼ pages. July 26, 1913, p. 151.

The law gives jurisdiction over all public utilities, except steam railroads engaged in interstate commerce, supervision over their service, facilities and rates, with power to order joint use of tracks and appliances, and full authority over stock and bond issues, with a provision similar to the Massachusetts law, prohibiting any stock, bond, or scrip dividend to be declared, or the division of the proceeds of the sale of any such among stockholders under penalty of not less than \$1,000 or more than \$10,000 for each offence.

31—Valuations.

The commission is directed to make, as soon as practicable, valuation of all public utilities under its supervision. This valuation is to be made from three separate standpoints as follows:

311.5—Original Cost Plus Cost of Additions and Extensions.

1. The amount of money expended in the construction and equipment, including the amount of money expended and to be expended for rights-of-way, or any property used in or useful to the business of the public utility and to replace all the physical properties belonging to such public utility.

33—Capitalization.

2. The outstanding stocks, bonds, debentures and indebtedness, amounts, date, to whom issued, to whom sold, the price paid in cash, property or labor, disposition of the proceeds, by whom the indebtedness is held, the amount due, the floating indebtedness and credits due other property, the judicial or other sales, property or franchises and the amounts paid, in which manner paid and the taxes paid thereon.

331.5—Net Earnings Rule.

3. The gross and net income of the public utility from all sources, the amounts paid for salaries to officers and the wages paid to its employes, and the maximum hours of continuous service required of each class.

222—Accounts

The commission also is required to keep itself informed of all new construction, extensions and additions of the property of all public utilities, and to prescribe the necessary regulations and instructions for the keeping of construction accounts, in which the law declares a distinction shall be made between operating expenses and new construction.

371—Sliding Scale of Rates and Dividends.

A public utility, with the consent of the commission, is authorized to prescribe a sliding scale of rates and dividends according to the Boston sliding scale, or other financial device, but if such arrangement or device is found by the commission, after investigation to be unlawful or unreasonable or unjust, it is given power to cause its abandonment. The commission is further authorized to determine and order such rates, charges and regulations as may be necessary to give effect to such arrangement, with the reserved right to make other and further changes in rates, charges and regulations as it may determine to be necessary and reasonable.

144—Mergers.

Under provision of the public utilities law, and also a law passed by Congress on the same day, known as the "anti-merger law," public utilities are prohibited from assigning their franchises without the approval of the commission, and it is made unlawful for any public utility to acquire the stock or bonds of any other public utility engaged in the same line of business unless authorized by the commission. The "anti-merger law" prohibits any foreign public utility corporation, or foreign or local holding corporation or any local public utility corporation to own, control, hold or vote the stock or bonds of any public utility corporation authorized by Congress to do business in the District of Columbia, except as expressly authorized by Congress.

REFERENCES

RATES

41—Cost of Service.

COST OF HYDROELECTRIC ENERGY, Editorial *Electrical Review*, July 26, 1913, p. 153.

This calls attention to the fact that the universal idea that water power always means cheaper electricity will not fit all cases. Operating costs are of course much lower for water power plants, since the largest operating expense is fuel, but fixed charges may be higher, due to the heavy preliminary investment oftentimes required in developing the water power, and in many instances very much out of proportion to the immediate demand for power, in order to have the most economical provision for future needs, and for the anticipated necessity of ultimately using the full capacity permitted by the available water supply. In such cases the fixed charges for the early years of operation make production more expensive than by a steam equipment adequate to supply the present required energy.

552—Lamp Renewals.

FREE TUNGSTEN RENEWALS, Editorial, *Electrical World*, July 26, 1913, p. 166.

States that the policy of able central station managers of preventing inferior lamps being used to the detriment of the company's service, is leading them to control tungsten lamp renewals for the same reason as they controlled carbon renewals. While free tungsten renewals were not practicable while lamps were costly and fragile, conditions have now changed, until it has been found advantageous, in the interests of the most satisfactory service, by many of the larger Edison companies, as recently announced in 3 RATE RESEARCH 251, to furnish tungstens of 100-watt rating and over free, and to offer the 60-watt and 40-watt lamps at prices far below cost.

61—Character of Service.

MECHANICAL REFRIGERATION AND ICE MAKING FROM A CENTRAL STATION POINT OF VIEW, by E. F. TWEEDY, *General Electric Review*, 9¼ pages. August, 1913, p. 584.

This paper shows the great opportunity offered by the power load of the above business in building up the yearly load factor of central stations, and how the manufacture and sale of ice by a small station may make all the difference between success and failure. Two pages of carefully prepared tables are given, covering the items of investment, daily capacity, yearly output, manufacturing cost, selling price, per cent net return on the investment, etc., of a score of ice-electric manufacturing plants. Data are supplied of the power consumption and the maximum power demand per ton of ice manufactured; and two of the more important applications of refrigeration, for storage and ice cream, are discussed in detail.

61—Character of Service.

ELECTRICITY APPLIED TO THE MANUFACTURE OF SUGAR, by P. S. SMITH, illustrated article, *General Electric Review*, 6 pages, August, 1913, p. 571.

This article outlines the processes followed in the modern mills for the production of refined sugar from the raw cane; and lays stress on the imperative demand for the most efficient form of mechanical operation, because of the rising cost of producing raw sugar and the decreasing price at which the finished product can be sold. In meeting this demand, the system which will win out is the one in which the fuel bill for the power plant is cut down to the minimum; and this viewpoint puts the electric system in its most favorable light, as it should be possible to raise all the steam for a good turbo-electric station from the refuse cane which is a by-product of the mill. The writer tells succinctly the suitability of the electric drive for operating the various machines in the mills, with numerous illustrations from large plants in Cuba.

616.1—Street Lighting.

RECENT DEVELOPMENTS IN THE STREET LIGHTING OF MANCHESTER, by S. L. PEARCE and H. A. RATCLIFF. *Journal of the Institution of Electrical Engineers* (England), 95 pages. May, 1913, p. 596.

This paper gives detailed information of some tests of electric and gas street lighting by the competitive lighting of two streets in Manchester, England, briefly mentioned in 2 RATE RESEARCH, 147. This report of the results obtained was read before various sections of the Institution, gives numerous curves of photometric tests, contour curves of illumination of Manchester and London streets, tables of costs and of candle power of illumination obtained, and with the discussion by members, forms an exhaustive account of these experiments in street lighting, which resulted in the vindication of the lighting of city streets by flame are lamps.

INVESTMENT AND RETURN**138—Contracts.**

THE ELEMENTS OF THE LAW RELATING TO CONTRACTS, by R. MOOT, *General Electric Review*, 2½ pages. August, 1913, p. 546.

This states briefly some of the elementary principles of law relating to contracts. It covers such points as date of contract, consideration, a definite description of apparatus or service concerned, date when delivery must be made or service rendered, all terms and conditions of payment, and the execution of the contract

by all parties, or by some one having authority to bind each party. Under the last item, for instance, care must be taken by a public service company in making a contract with a municipality, to ascertain fully the authority of the municipality under its charter or under the statutes to make the contract, as such agreements have been set aside as illegal, although the municipal officer or agent may have acted in good faith and within the apparent scope of his authority, when it has been shown that the municipality itself was not duly authorized. Another point which has failed of enforcement by some electric companies is a delayed payment penalty, as in most states, laws forbid a penalty clause. The proper provision on this point is a prompt payment discount.

228—Franchises.

THE NEW YORK SUBWAY CONTRACTS, by DELOS F. WILCOX, *National Municipal Review*, 17 pages, July, 1913, p. 375, and reprinted, pamphlet 16 pages.

The writer of this paper has been chief of the bureau of franchises of the New York Public Service Commission (1st D.) since its beginning, and no better qualified authority could set forth the plans for rapid transit development in Greater New York and the main provisions of the contracts under which construction and operation of the lines are to be carried out. It gives a comprehensive expert summary of these agreements, which it is stated comprise the most stupendous franchise bargain that has ever been considered by any city in the world. An instructive comparison is made with the analogous settlements in Chicago and Cleveland. The enormous proportions of the project are shown by the various figures given of the service to be performed and the estimates of aggregate costs. It is computed that at the end of five years with all these new facilities completed New York City's rapid transit capacity (not including of course surface street railways) will be at least 3,000,000,000 passengers per annum.

It concludes with a résumé of the chief arguments in favor of this plan, the advantages secured by it, and also of the arguments and objections which were raised against it.

228—Franchises.

FRANCHISES, by JAMES V. OXTOPY, address delivered before the OHIO ELECTRIC LIGHT ASSOCIATION, Cedar Point, July 15-18, and Editorial, *Electrical Review*, 11½ pages. July 26, 1913, p. 185 and p. 155.

The address, by the counsel for the Detroit Edison Company, gives a clear and concise statement of what should be sought by a company in obtaining a franchise, both for the best interests of the utility and of the public. There has been much confusion on this subject, due to the fact that the public, accepting superficial reasoning, now has the opinion that a short term is the cure for past evils in the unregulated administration of public service business. The short term, which was some safeguard when there was no state regulation, as it permitted municipal or other government authorities to make another bargain with the company, with the inserting of requirements as to rates, service, extensions, etc., is now, on any thorough study of the matter, clearly as bad for the public as for the utility, involving higher depreciation and amortization costs, higher expense in borrowing money, etc., resulting in the most uneconomic operation. The editorial comment speaks to the same effect, and of the need of clearing up this question in the public mind, and educating public officials to the fact that the indeterminate permit is both in theory and practice the fair and adequate solution of the problem.

36—Depreciation.

SOME ILLOGICAL THEORIES DISCUSSED—THE WRONG USE OF THE ELEMENT OF DEPRECIATION IN VALUATIONS TO CONTROL RATES, by R. B.

RIFENBERICK. *Acra*, 8 pages. July, 1913, p. 1038.

This paper claims that it is essentially unjust, being in reality confiscation, to depreciate properties in establishing valuation for rate making purposes, that none of the depreciation theories which have been worked out, based on life tables, etc., are practically useful, though depreciation allowances and funds are to be kept up, presumably determined by individual judgment and experience.

39—General Investment and Return Information.

LIST OF PUBLICATIONS OF THE DEPARTMENT OF COMMERCE, AVAILABLE FOR DISTRIBUTION. Pamphlet, 63 pages. Government Printing Office, and Price List No. 18 of the Superintendent of Documents' Office, Washington, D. C.

The first pamphlet above, giving government publications now available for "free but judicious" distribution lists many works of interest to electric companies, including reports on power and machinery employed in manufacture, electrical industries in different regions, water powers in the United States, standardization of electric practice, etc. The price list noted covers the divisions Engineering-Mechanics, and lists several pages of works on electric subjects which are for sale by the Superintendent of Documents at a nominal price.

PUBLIC SERVICE REGULATION

2—Public Service Regulation.

RIGHTS AND DUTIES OF PUBLIC SERVICE CORPORATIONS, by HON. J. B. WHITFIELD, Chief Justice of Florida. *Yale Law Journal*, 9 pages. November, 1912, p. 39.

This is a general review of the legal aspect of governmental regulation of public service business, the justification and controlling purpose of which is stated to be the securing to the public its primary right to reasonably adequate services for a fair compensation and without unjust discrimination, and to preserve to the corporations their absolute right to reasonable compensation for service rendered, and to security against being deprived of their property or of its use in violation of law. Experience has shown that proper governmental regulation and supervision contribute to the stability of the corporate earnings and give confidence to investors by insuring a steady return for property and labor devoted to the service. An enumeration is given of the chief duties and corresponding rights and privileges, including the use of franchises, of public utility companies; and it is stated that for the best results a wide discretion should be accorded to commissions or other established regulating bodies, and that though because of the public interest being affected, the governmental authority to supervise and regulate the rendering of public service by corporations extends to every phase of their activities, yet the law does not permit confiscation or the imposition of unreasonable burdens, or even arbitrary control and management of public utility corporations and their property by governmental authority under the guise of authorized supervision and regulation.

211—Qualifications of Commissioners.

WHY ENGINEERS SHOULD BE APPOINTED AS MEMBERS OF THE ILLINOIS PUBLIC SERVICE COMMISSION. Editorial, *Engineering and Contracting*, July 23, 1913, p. 85.

This states that engineers are indispensable for the highest efficiency of public service commissions, as they are from their training not only more judicial than lawyers, whose occupation is more often combative and partisan, while the work

of engineers calls only for the scientific mind and constant dealing with the truth and facts of science, but in addition engineers are possessed of the technical knowledge necessary to an understanding of the electrical business, engineering departments of railroads, etc., which are vital parts of the subject matter of regulation. Engineers, too, have not had their moral courage and honesty weakened by such experiences of politicians as playing to the galleries, or sacrificing principles to vote catching. It is suggested that if the strong arguments in favor of engineers for commissioners are presented to Governor Dunne it is very likely to result in some creditable appointments from this profession.

GENERAL

199—General History of Utilities.

NATURAL GAS SERVICE, by SAMUEL S. WYER. Illustrated pamphlet, 32 pages.

This is a discussion with numerous illustrations, diagrams, tables of comparative prices and a map of Ohio showing its transmission lines, of the relative cheapness of natural gas for lighting and fuel. The claim is made, based on the data detailed here, that natural gas at fifty cents per thousand compared with electricity at 5 cents per kilowatt hour, is for lighting (tungsten lamps) only 60 per cent of the cost of the latter, and for heating and cooking only $3\frac{1}{2}$ per cent of electric cost.

771—Inspection.

RULES CONCERNING OVERHEAD HIGH TENSION WIRES, *Electric Railway Journal*, 2-3 page. July 26, 1913, p. 150.

This gives the set of rules promulgated by the Illinois Railroad and Warehouse Commission governing the installation of electric wires or other forms of metallic conductors carrying electric current over railroad tracks.

771—Inspections.

INVESTIGATION OF THE CONDITIONS GOVERNING THE CHOICE OF A PROPER QUALITY STANDARD FOR ARTIFICIAL GAS. By the JOINT COMMITTEE ON CALORIMETRY of the NEW YORK PUBLIC SERVICE COMMISSION (2nd D.), and the Gas Corporations Subject to Its Jurisdiction. March 6, 1913. Pamphlet, 95 pages.

This report gives extensive and interesting information on the gas industry, various conditions and methods of operation, with the conclusions and recommendations of the Committee as to practices and a heat unit standard.

91—Promotion and Growth of the Business.

THE PRODUCTION AND DISTRIBUTION OF ENERGY, by SAMUEL INSULL. Reprinted from the *Journal of the Franklin Institute*, June, 1913. Pamphlet, 39 pages.

This interesting paper giving descriptions of systems of unified service by means of interconnected transmission networks from large generating stations, with figures of savings from improved load factor, diversity factor and other economies of wholesale production, was read before the Franklin Institute, Philadelphia, and abstracted in 3 RATE RESEARCH, 14. It is now reprinted as above, with numerous charts, curves, maps, tables of comparative costs, and of data on electric supply to farms in Lake county district, Illinois.

Vol. 3

August 6, 1913

No. 19

RATE RESEARCH



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CONTENTS		Page
RATES		291
FAMOUS RATE PAPERS—NO. 3		291
COMMISSION DECISIONS		294
Wisconsin		294, 296
TESTS AND ACCURACY OF METERS		297
England		297
COURT DECISIONS		297
North Carolina		297
Massachusetts		299
Kansas		300
Illinois		300
United States Commerce Court		301
Illinois		302
REFERENCES		302
Rates		302
Investment and Return		303
Public Service Regulation		303
General		304

Rate Research

Vol. 3.

CHICAGO, AUGUST 6, 1913

No. 19

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES

FAMOUS RATE PAPERS—No. 3

EQUITABLE, UNIFORM AND COMPETITIVE RATES

By HENRY L. DOHERTY. Read before the National Electric Light Association, Chicago, Ill., May, 1900. *Proceedings of the Twenty-Third Convention of the National Electric Light Association*, pages 289-343.

NOTE—The paragraph headings are not in the original.

4—Rate Theory.

We probably all agree that the rate question is of vital importance to the development of central-station work. Of the several methods proposed, none are universally satisfactory, even to the managers of stations similarly situated, and many of us are not satisfied with any of them.

The natural laws governing the sale and purchase of electric current do not differ greatly from those of any other commercial business, except in one particular; the average commercial business is at liberty to bargain and sell with each consumer; it is at liberty to discriminate in prices or methods.

65—Discrimination.

Any company enjoying public grants is apt to be considered as a quasi public corporation, and is amenable to the general laws of this class. Frequent suits have been brought to determine the right of a quasi public corporation to discriminate in rates between various customers, and in almost every instance the court has held that such discrimination was illegal. Numerous decisions would warrant us in considering the illegality of discrimination to be an established fact. The whole question, then, must hinge on what constitutes discrimination. There is probably more legislation in vogue for the control of railroads than for any other class of quasi public corporations, and the Interstate Commerce Commission (a national board of control) permits them to charge different rates per ton for different distances, not proportional to the distance, and also permits them to charge different rates per ton for the same distance for different commodities. This would warrant the belief that we could legally discriminate in our methods of charging between different classes of service and different classes of consumers.

The right to bargain with each customer is a doubtful advantage, and private business houses that are not amenable to legal prevention

against discrimination have nearly all abandoned this policy in favor of a similar policy that is forced upon us legally. In view of the fact that they deal with the same class of people as the customers of the average central station, it is natural to suppose that our eventual policy will be one price to all, regardless of legal coercion.

5—Rate Practice.

The electric business was started as a competitor to gas. The early promoters of this new method of lighting were naturally inclined to adopt the same methods of charging as then in vogue among their competitors. Without meters, they were compelled to use flat rates. Later, when meters were procurable, they adopted the system used by the gas companies, and have since gradually awakened to the fact that while this system may be suitable to gas business (which is questionable), it is not suitable to the electric business. Much of the experience gained in the gas business is applicable to the electric business, but there are certain distinctive features for which compensation must be allowed. Gas companies can manufacture uniformly for twenty-four hours, being able to store their product cheaply and economically. The distribution of gas does not require any exact degree of pressure regulation. The conductors used are hollow, and the cost does not increase proportionally to the increased conductivity.

41—Cost of Service.

I give below some comparative figures, which I think forcibly indicate some of the differences between the electric and gas business, requiring special consideration:

COST OF STORAGE CAPACITY

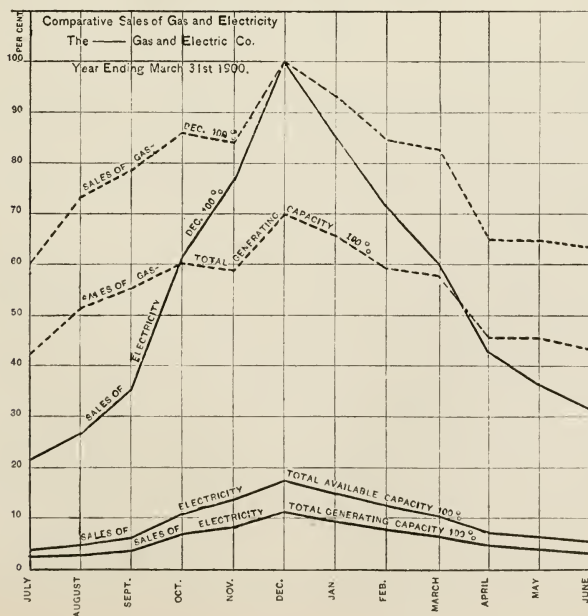
Gas, per 1,000 cu. ft.	\$ 50.00	
Gas per ft. ....	.05	
Electric per K. W.-hour. . .	100.00	
Gas per C.-P.-hour. ....	.0033½	Incandescent gas lamp, 15 candles per ft.
Electric per C.-P.-hour. . .	.10	Arc lighting, 1 Watt per candle.
Gas per C.-P.-hour. ....	.0166	Open flame, 3 candles per ft.
Electric per C.-P.-hour. . .	.312	Incandescent, 3.1 Watts per candle.
Gas, per K. W.-hour, developed	1.25	Gas engine, 25 cu. ft. per K.-W. hour.
Electric per K. W.-hour, developed	125.00	Electric motor, 80 per cent efficiency.
Gas per \$1.00 unit of value	50.00	\$1.00 per 1,000 cubic ft.
Electric per \$1.00 unit of value	1,000.00	10 per K. W.-hour.
Gas per million B. T. U. . .	76.97	650 B. T. U. per ft.
Electric per million B. T. U.	29,312.53	{ 778 ft.-lbs. per B. T. U.
		{ 3,411.51 B. T. U. per K. W.-hour.
Gas—Efficiency (approximately)	100 per cent.	
Electric—Efficiency (approximately)	56 to 72 per cent.	

CONDUCTORS.

Gas—Size of pipe (cast iron)	2 in.	4 in.	8 in.	16 in.	30 in.	60 in.
Area . . in circular inches	4	16	64	256	900	3,600
Conductivity	1	5.65	32	180	880	4,950
Relative conductivity per circular-inch	1	1.4	2	2.75	3.9	5.5
Relative conductivity of electric conductors . . .	1	1	1	1	1	1
Weight of pipe per foot.	6	17	40	100	250	900
Relative conductivity per pound	1	2	4.8	10.4	21.2	33.5
Relative conductivity of electric conductors . . .	1	1	1	1	1	1

623—Load Factor.

I also give daily and yearly load curve for the same city for gas and electric service, showing also the percentage "sendout" compared with the generating capacity of the two plants:



The central-station business is one composed largely of fixed charges, whose aggregate amount is not appreciably affected by the quantity of current sold. The cost of current delivered on the consumers' premises is more greatly influenced by a high kilowatt *consumption compared with the maximum demanded than by any other factor affecting our cost.

51—Forms of Rates.

Tiresome as it may seem, I shall have to consider the better known systems of charging before proceeding further with my argument. I shall confine this discussion to the several distinctive methods of charging now in vogue, and shall not attempt to discuss the numerous variations that have been injected into them to compensate for their lack of ability to meet the objections of the managers adopting them.

(This paper will be continued in the next number of Rate Research)

COMMISSION DECISIONS

WISCONSIN

72—Rate Schedules.

Application of FORT ATKINSON WATER AND LIGHT COMMISSION, for Authority to Increase Electric Rates to Consumers Outside City Limits. Decision of the Wisconsin RAILROAD COMMISSION, Dismissing the Present Application, but Approving this Differential on Ground of Cost of Service, and Recommending Rate Schedules Accordingly. *Electrical Review*, (with editorial) 1 page, August 2, 1913, p. 202 and p. 223.

This is an application by a municipal plant, to increase its electric rates to consumers who are not residents of the city, and therefore not taxpayers. The Commission held that the municipal company's plea that such an increase should be allowed for the reason that the tax burden for citizens within and without the corporate limits would be equalized thereby, is an unjustifiable argument. Since, however, a municipality by owning and operating its own utility may promote the welfare of its residents, and grant its consumers certain advantages which they would not receive if served by a private plant, the city might refuse to grant these advantages to consumers who had no share in the risks of the plant; but higher rates to non-taxpaying consumers can be made only when such charges are clearly shown to rest on the greater cost of the service to these customers.

The Commission thereupon made a careful analysis of the comparative costs of the different classes of service, using a tax rate of 1.5 per

*So in original (kilowatt-hour.)

cent, and an interest rate of 4 per cent on the investment for city service, and 7.5 per cent on that for non-resident service, and found that the actual revenues from commercial lighting were in excess of the cost based on the 7.5 per cent interest rate, and therefore that no increase could be made to the present rates of these consumers. As no request was made for a decrease in rates, no reduction was ordered, but the Commission worked out schedules of rates differentiating between city and non-resident consumers along the line laid down in the opinion, and recommended the adoption of these rates by the company.

The editorial comment states that to carry out this idea logically, the same distinction should be made between taxpayers, and all those even within the city who are not; and that it would seem equally proper for a privately owned utility to make a distinction in rates between those consumers who are stockholders and those who are not.

The Commission ordered the city to either purchase, or pay a reasonable rental for, all meters now owned by consumers, and to discontinue the present practice of charging a meter rental to consumers who do not own their meters.

The rate schedules recommended by the Commission are as follows:

GENERAL LIGHTING RATE

(For City Residents.)

Rate.

10 cents net per kilowatt-hour for first 30 hours' use per month of active connected load.

6.5 cents net per kilowatt-hour for next 60 hours' use per month of active connected load.

4.5 cents net per kilowatt-hour for excess use.

Minimum Charge.

60 cents per month.

(For Non-Residents.)

Rate.

12 cents net per kilowatt-hour for first 30 hours' use per month of active connected load.

8 cents net per kilowatt-hour for next 60 hours' use per month of active connected load.

5.5 cents net per kilowatt-hour for excess use.

Minimum Charge.

75 cents per month.

Determination of Demand.

The determination of active load is made according to the plan laid down by this Commission in previous decisions. (See 3 RATE RESEARCH 245.)

POWER RATE

(For City Residents.)

Rate**Demand Charge.**

50 cents per active horse-power of connected load per month.

Energy Charge.

3.5 cents net per kilowatt-hour.

(For Non-Residents.)

Rate**Demand Charge.**

60 cents net per active horse-power of connected load per month.

Energy Charge.

4 cents per kilowatt-hour.

Determination of Demand.

90 per cent of the first 10 horse-power connected shall be considered active.

75 per cent of the next 20 horse-power connected shall be considered active.

60 per cent of the next 30 horse-power connected shall be considered active.

50 per cent of all over 60 horse-power connected shall be considered active.

WISCONSIN**72—Rate Schedules.**

Complaint against the **EQUITABLE ELECTRIC LIGHT COMPANY**, Lake Geneva (pop. 3079) Wis., **Alleging Excessive Rates**. Decision of the **WISCONSIN RAILROAD COMMISSION**, **Adjusting and Slightly Reducing the Rates**. *Electrical World*, 1/3 page, August 2, 1913, p. 225.

The Commission found on investigation that a comparatively large number of the customers of this company are residents of Lake Geneva during the summer only, and that the cost of supplying this special demand greatly increased the expenses of the plant. No reduction therefore was made in the rate, 15 cents per kilowatt-hour, for these consumers, but a slight reduction is made to the permanent residents, by ordering the following schedule:

GENERAL LIGHTING RATE**Rate.**

14 cents net per kilowatt-hour for first 30 hours' use per month of active load.

12 cents net per kilowatt-hour for next 60 hours' use per month of active load.

8 cents net per kilowatt-hour for excess use.

Minimum Charge.

60 cents per month for 1 kilowatt or less of connected load, and increasing proportionately to demand, up to \$2.25 per month for over 5 kilowatts of connected load.

Determination of Demand.

The usual method prescribed by this Commission (See 3 RATE RESEARCH 245).

POWER RATE

The Company's schedule for motor service, ranging from 7.5 cents to 4 cents per kilowatt-hour was ordered abandoned, and the following rates, which will effect an increase in revenue from this class, substituted:

Rate**Demand Charge.**

75 cents per active horse-power of connected load per month.

Energy Charge.

5 cents per kilowatt-hour for first 50 hours' use per month.

3 cents per kilowatt-hour for excess use.

Determination of Demand.

Same as in previous case.

786— TESTS AND ACCURACY OF METERS (ENGLAND)

LIMITS OF ERROR FOR CONTINUOUS CURRENT AND FOR SINGLE PHASE ALTERNATING CURRENT METERS. England.

The Board of Trade of England, in pursuance of the provisions of the act of parliament relating to the supply of electricity, has published the following rules designating the allowable limits of error in meters for measuring the amount of the supply on continuous current or on single phase alternating current circuits:

Meters in which the maximum current for full load:—

(a) does not exceed 3 amperes, the error at any point from one-tenth load to full load must not exceed $3\frac{1}{2}$ per cent. plus or minus:

(b) exceeds 3 amperes but does not exceed 50 amperes, the error at any point from one-tenth load to full load must not exceed $2\frac{1}{2}$ per cent. plus or minus:

(c) exceeds 50 amperes, the error at any point from one-twentieth load to one-tenth load must not exceed $2\frac{1}{2}$ per cent. plus; and at any point from one-tenth load to full load must not exceed $2\frac{1}{2}$ per cent. plus or minus.

Signed by order of the Board of Trade this 13th day of June, 1913.

COURT DECISIONS**NORTH CAROLINA****831—Purchase by the Municipality.**

ASBURY et al. v. TOWN OF ALBEMARLE. Action for Injunction to Restrain the Municipality from Constructing a Water Works System, and Mandamus to Compel the Purchase of Existing Plant. Decision of the SUPREME COURT OF NORTH CAROLINA, Dismissing the Action. May 13, 1913. 78 Southwestern 146.

This case may be compared with the somewhat similar one on a larger scale of the Denver Union Water Co. franchise case, given in 3 RATE

RESEARCH 277, and the same argument may be drawn from it for indeterminate permits, as affording Companies the greatest measure of protection of their properties against municipal competition and consequent ruinous loss of value, which they have yet secured. In the Denver case the Water Company based its claim on some loose provisions in its franchise looking to either the purchase of its property or the renewal of its franchise by the city. In the present case, reliance was placed upon a state law, which however upon trial was found powerless to help the Company to save any part of its investment. This suit was brought by the owners of a small water works property to compel the town of Albemarle to purchase their plant before proceeding with the construction of a municipal water works system, as provided for in a law passed by the North Carolina legislature in 1911, as follows:

Whenever any incorporated town or city which under this or by special act, has been or may be authorized from the sale of bonds or otherwise to build, operate, and maintain a public * * * waterworks * * * there shall have been constructed in said town or city by any private or quasi-public corporation * * * waterworks * * * then in active operation and serving the public, which construction or operation was authorized by said town or city * * * then, before constructing any proposed system of waterworks * * * heretofore or hereafter authorized by law, along or upon the streets occupied by such private or quasi-public corporation, the town or city within which such utilities are located and owned, proposing to build any public system of like character, shall, before undertaking to do so, first acquire, either by purchase or condemnation, the property of such system already laid, operated, and maintained by such private or quasi-public corporation. . .

The Court held that the existing plant is inadequate, its pipes so small as to be worthless in the construction of a new plant, and the existing equipment of no value to the town in its project of installing a large and modern plant; and rules further, that the ownership being by a partnership and not a corporation, and the existing service poor and limited, the plant does not come within the terms of the law.

But the decisive and significant part of the Court's judgment is that the law itself is unconstitutional and void:

We do not think the Legislature can dictate to a municipal corporation the manner in which it may acquire its waterworks any more than it can dictate the kind of engine to be used in pumping the water. The principle of local self-government requires that this of necessity must be left to the sound discretion of the municipal authorities. . .

In matters purely governmental in character, it is conceded that the municipality is under the absolute control of the legislative power;

but, as to its private or proprietary functions, the Legislature is under the same constitutional restraints that are placed upon it in respect of private corporations. . .

It will hardly be contended that, even in respect to such corporations, the legislative power is so transcendent that it may, at its will, take away the private property of the corporation, or change the uses of its private funds acquired under the public faith. . .

It is well settled that local conveniences and public utilities, like water and lights, are not provided by municipal corporations in their political or governmental capacity, but in that quasi private capacity in which they act for the benefit of their citizens exclusively. . .

A town cannot be compelled by the Legislature to undertake public improvements not governmental in character. This is well settled. 1 Abbott, Mun. Corp. 134. If the Legislature cannot compel a municipality to establish waterworks, how can it control the exercise of its discretion by the municipality when it undertakes to install them. The exercise of such a power would be destructive of the most cherished principles of local self-government. . .

The enactment of a similar law in Montana is cited, and also the fact that it was decreed unconstitutional by the Montana courts, and on appeal, by the United States Supreme Court.

The present decision concludes:

We are of opinion that the statute under consideration is void in so far as it attempts to control the exercise of discretion by the defendant in the management of its purely private and property rights.

MASSACHUSETTS

616.1—Street Lighting.

SMITH V. ROURKE, COMMISSIONER OF PUBLIC WORKS. Petition for a Writ of Mandamus to Compel the Commissioner to Expend an Appropriation for Gas Street Lights, when Sufficient Evidence showed that Electric Street Lighting was more Economical. Decision of MASSACHUSETTS SUPREME JUDICIAL COURT, Dismissing the Petition. June 18, 1913. 102 Northeastern. 362.

The City Council of Boston in May, 1911, appropriated \$300,000 to be expended by the Department of Public Works for the purchase of gas lamps and other apparatus for street illumination by gas. The Commissioner, having made investigations as to the most practical and economical system of municipal lighting, refused to make the purchases authorized in this order, as the facts found as to the initial cost and maintenance expense, and the necessity for a large investment by the city, for illumination by gas, proved this method of street

lighting inferior to electricity. The Court says that the city charter of Boston or the general laws of the commonwealth furnish no compulsion for such disbursement, and that the appropriation of money for a specific purpose does not make its expenditure mandatory in a case like the present.

The Court says that the results of the Commissioner's investigation may be summarized by saying that

both on grounds of efficiency and economy he believes public interests will be far better served by not making the purchase authorized by the appropriation, and that a large amount of money may be saved to the municipal treasury by making a contract for electric lighting with a company which for many years past has illuminated a large portion of the city.

KANSAS

228—Franchises.

CITY OF MOLINE V. MOLINE DRILLING AND DEVELOPMENT CO. Suit to Restrain Company from Increasing its Gas Rates Above those Prescribed in Ordinance Granting the Franchise. Decision of the KANSAS SUPREME COURT Sustaining the Ordinance. May 10, 1913. 131 Pacific 1189.

In this case the Company sought to raise its rates above those prescribed in the city's ordinance granting the franchise under which the Company has been operating for over six years. The Company contended first, that the city had no authority to grant the use of its streets or to fix rates for the proposed service; and second, that inasmuch as the Company had never filed with the city clerk its acceptance of the ordinance as provided therein to make it effective, it had not become a contract.

The Court dismisses both these grounds, and rules that the Company must continue to adhere to the rates specified in the ordinance. The decision cites the Kansas statutes conferring authority on cities of the first, second or third class to grant such franchises, to contract with public utility companies for supplying heat, light, water or power, and to fix all charges therefor; and holds that the failure to formally accept the terms of the ordinance cannot relieve the Company from its obligations after having enjoyed the undisturbed use of the streets for over six years, as this constituted an actual, practical acceptance of the ordinance, and consequent valid contract.

ILLINOIS

14—Relations of Corporations With Each Other.

UNION TRUST AND SAVINGS BANK OF EAST ST. LOUIS et al. v. KINLOCH LONG-DISTANCE TELEPHONE CO. of Missouri. Suit to Annul Exclusive

Telephone Contract. Decision of ILLINOIS SUPREME COURT, Declaring the Contract Illegal and Void. April 19, 1913. 101 Northeastern 535.

The contract annulled by this decision was one between the local telephone company in Vandalia (pop. 2,974) and the Kinloch Long-Distance Telephone Co., binding the Vandalia Company to connect its lines only with the lines of the Kinloch Company for long distance service, to the exclusion of the lines of the Bell Company, a competitor for the long distance business. The Bell system had a local exchange at Vandalia connected with its long-distance lines, when the Vandalia Telephone Company was organized in 1906 and as an "independent" company established itself locally, and sought to support the "independent" Kinloch long-distance company as a competitor of the Bell system, by making the exclusive contract in question. It was argued therefore, that the effect of the contract was to create competition, and not to destroy it, but the Court held that by it the Vandalia Company deprived itself of the power to render to the public a part of the service it was organized to render, and that any contract even in partial restraint of trade is void as against public policy when it involves public utility companies, though in ordinary industries, not affected by the public interest, contracts which are in only partial restraint of trade are permitted in certain situations.

UNITED STATES COMMERCE COURT

222.3—Method of Keeping Accounts.

KANSAS CITY SOUTHERN RY. CO. v. UNITED STATES (INTERSTATE COMMERCE COMMISSION, INTERVENER.) Petition by Railway Co. to Vacate Certain Accounting Orders of Interstate Commerce Commission. Decision of the UNITED STATES COMMERCE COURT. Dismissing the Petition, and Sustaining the Orders. April 21, 1913. 204 Federal 641.

This is a complaint of the above railway against that part of the Uniform System of Accounts specifying classification of expenditures for additions and betterments, ordered by the Interstate Commerce Commission, which directs that where parts of a railroad or shop are abandoned and replaced by a new railroad or shop, the cost or estimated reproduction value, of the abandoned property, less salvage, shall be deducted from the cost of the new work, and the balance only charged to the property account; and that the cost or value, less salvage, of the abandoned property shall be charged to operating expenses, provided that, if the amount of the charge to operating expenses warrants a distribution of the loss over a series of years in the future, the total amount may be charged into an account designated "Property Abandoned Account," during a term of years previously approved by the Commission.

This petitioning railroad found it necessary to relocate some divisions of its tracks to get rid of grades, and to replace a shop and terminal

plant by larger structures, and showed that while the Commission's order is no burden to the large railroads with great financial strength, it rests more heavily on the roads with less financial resources, and among these the petitioner classes itself, and sets forth also that it is in active competition with powerful rivals in the same general territory. The Kansas City Southern therefore asks in effect that it should be allowed to retain in its property account the replacement value, less salvage, of the property abandoned; but failing this contends that it has the right to charge the value of the abandoned property, less salvage, against its accumulated surplus, as represented in its profit and loss account, instead of charging it to operating expenses. The Court sustains the Commission's orders, and quotes several authorities on the subject of the capitalization of replacements, to prove that the method ordered by the Commission is a correct and proper one.

ILLINOIS

111.1—Incorporation Tax.

CHICAGO, BURLINGTON AND QUINCY RAILROAD COMPANY V. DOYLE, SECRETARY OF STATE, et al. Suit for Injunction to Restrain Collection by the State of Fees for Extending Railroad's Charter. Decision of ILLINOIS SUPREME COURT, Granting Perpetual Injunction. June 18, 1913. 102 Northeastern. 260.

The above railroad paid, under protest, to the Secretary of State, \$110,885 as fees for extending its charter, which was about to expire. This decision orders the return of the money to the railroad, and cites the statutes at length showing that railroads come under the Railroad and Warehouse Act, containing no requirement for payment of fees for extending their charter, while other corporations come under the general Incorporation Act, which provides for the payment of the same fees for extending the term of corporate existence, as required for the incorporation of a new company.

REFERENCES

RATES

41—Cost of Service.

ANALYSIS OF KILOWATT-HOUR COSTS OF COMBINATION SYSTEM. *Electrical World*, $\frac{2}{3}$ page. August 2, 1913, p. 238.

This gives data on the fixed charges and energy costs of the Pacific Gas and Electric Company, San Francisco, a combined steam and hydroelectric plant, about four-fifths of its power being generated by steam, and one-fifth by water power. The tables here given show details of costs as apportioned under the various headings generation, distribution, interest and depreciation; the average receipts under the various schedules, lists of rates, with number of meters installed and kilowatt-hours sold under each rate, etc.

It is estimated that 31 per cent is lost in distribution, and in addition 150,000 kilowatt-hours consumed by the Company itself, leaving 66,957,215 kilowatt-hours as the basis of figuring the costs. The summary shows a total net cost (the revenue from minimum charge being deducted) of \$.0324 per kilowatt-hour; and the rates range from a maximum rate of 8 cents per kilowatt-hour, to a power rate of 4 cents per kilowatt-hour.

61—Character of Service.

ELECTRICITY IN DEPARTMENT STORES, illustrated article, *Electrical Review*, 6½ pages. August 2, 1913, p. 205.

This discusses the power requirements of elevators, refrigerating machines, ventilating fans and miscellaneous machines used in the modern department store, and gives general data, and data from six department stores in different cities, and with varying installations, on illumination; and an outline of the best methods of comparing isolated-plant with central-station power costs.

INVESTMENT AND RETURN

31—Valuation.

LA FOLLETTE'S OBJECTIONS TO PLACING ENGINEERS IN CHARGE OF RAILWAY APPRAISALS. Editorial, *Engineering and Contracting*, ¾ page. July 30, 1913. 113.

This discusses the statement that an economist rather than an engineer is needed at the head of the Interstate Commerce Commission's appraisal of the railroads, and says that a thoroughly trained engineer has a knowledge of economics and accounting, both as part of his education, and of practical experience in his work. It is pointed out that the three economic doctrines which have most interested the public in the last few years, have been forced into public attention by engineers, namely "scientific management," "rate making based on actual cost," and "unit costs as the criterion of efficiency."

312—Physical Inventory.

AN IMPROVED INVENTORY SYSTEM, by E. I. TITLOW. *Journal of Electricity, Power and Gas*, 2 pages. July 26, 1913, p. 94.

This gives directions for the best procedure in the work of field parties making inventories of electrical properties. It includes instruction on the most practical condensed method of reporting the condition of pole lines, substations, underground material, transformers, determination of unit prices for material and labor, maps and profiles, estimates as to obsolescence and depreciation; and urges the necessity of a thorough system of cataloguing and indexing so that all these data, which are of value and practical usefulness to the construction and operation departments of the company, as well as for the matter of appraisals, will be of ready access.

PUBLIC SERVICE REGULATION

224—Rate Regulation.

THE COMMONWEALTH-EDISON RATE INQUIRY, by CHARLES B. WILLARD, and ARTHUR C. KING. *The Voter*, 3½ pages. August, 1913, p. 37.

This is a brief summary of the work of the investigation by the city electrician of Chicago, of the property, business and rates of the Edison Company, the report of which was abstracted in 3 RATE RESEARCH 118. It describes the methods followed in fixing the valuation, calculating depreciation, estimating the cost

of service and return on investment for the different classes of customers, including wholesale power supplied to street railways—this company furnishes approximately three-quarters of all the electricity used by the surface and elevated street railway systems of Chicago—allowances in capitalization for going value, and allowances as to surplus and working capital, with brief explanation of the Wright Demand System of rate making used by the Company.

268—Public Service Laws.

MAINE PUBLIC UTILITY REFERENDUM. Editorial, *Electric Railway Journal*, August 2, 1913, p. 168.

This states that opposition to the recently passed public utility law in Maine developed as soon as the Legislature which passed it adjourned, much criticism being directed to the fact that the Governor had appointed three lawyers as Commissioners, instead of at least one engineer; and the opponents of the measure having put the wheels of the referendum machinery in motion, the question must now be submitted to the people in a general election within six months from the date of the proclamation suspending the law. This is noted as surprising, as the theory of the referendum is to prevent legislation against the interests of the majority of the population; but that it may be invoked to delay a law so manifestly in favor of the people, might be regarded as a travesty upon the theory of public utility acts and the working out of the referendum. However, the wholesale passage of these laws in the past few years may suggest that a little delay and added consideration of a bill may not be a bad thing.

268—Public Service Laws.

PENNSYLVANIA PUBLIC SERVICE COMPANY LAW, *Electric Railway Journal*, 1½ pages. August 2, 1913, p. 194.

This gives a summary of the Pennsylvania bill which became a law by the signature of the Governor on July 26, a brief reference to which was given in 3 RATE RESEARCH 271.

GENERAL

38—Taxation.

SOME REASONS FOR THE INCREASE IN PUBLIC DEBT AND THE RAISING OF TAX RATES, Editorial, *Engineering News*, July 31, 1913, p. 221.

This states that the higher taxes paid now as compared with those of the past do not in general represent increased expense to the individual or property owner, but only that the services for which he now pays by means of taxes were formerly done by the individual property owners, instead of by the public. This applies to all such modern conveniences as electrical and gas street lighting, pure water supply, garbage and ash collection, sanitary sewage, etc., now done by the city through co-operation; and all these improvements, which are now regarded as necessities, it would be quite impracticable to provide by the old method of separate responsibility.

98—Public Relations.

EFFICIENCY IN UTILITY ADVERTISING, by E. ST. ELMO LEWIS. Paper read before the National Commercial Gas Association Convention. Atlanta. *Public Service Regulation*, 1 page. July, 1913, p. 355.

This tells, with some striking and apt illustrations from the development of improved business methods in different industries, of the practical benefit to a public utility of establishing friendly relations with its public, and of useful applications of the principles of scientific management in public utility affairs.

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	CONTENTS	Page
	COURT DECISIONS.....	307
Wisconsin		307
	COMMISSION DECISIONS.....	313
Nebraska		313
	LAMP EFFICIENCY.....	317
England		317
	REFERENCES.....	317
Rates.....		317
Investment and Return.....		318
Public Service Regulation.....		319
General.....		319

Rate Research

Vol. 3.

CHICAGO, AUGUST 13, 1913

No. 20

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COURT DECISIONS

WISCONSIN

831—Purchase by Municipality.

APPLETON WATER WORKS CO. V. RAILROAD COMMISSION OF WISCONSIN. Suit by the Company to Increase the Valuation of Its Property Fixed by the Commission for Municipal Purchase. Decision of WISCONSIN SUPREME COURT, Sustaining Commission's Valuation Except as to Interest, which is Allowed, at 6 per cent on the Purchase Price from Date of Taking by the City to Date of Actual Payment. May 31, 1913. 142 Northwestern, 476.

This is an appeal by Appleton Waterworks Company against the Commission's valuation of its plant, alleging that the total compensation as fixed by the Commission was inadequate and unlawful in the following particulars:

First, that it did not include interest from the time the city should take possession until payment of the compensation;

Second, that it did not include costs and disbursements of the plaintiff, in case judgment should be rendered in favor of the plaintiff in an action brought by it . . . to alter and amend the order of the commission;

Third, that it did not include the value of the indeterminate permit or franchise of the plaintiff;

Fourth, that it did not include the value arising from the existence of permanent pavements over service pipes;

Fifth, that it did not include the value arising from the cost of excavating and filling trenches in which to lay 252 service pipes; and

Sixth, that the going value determined by the commission and included in the amount fixed by it was based upon improper considerations, and was inadequate in amount.

31—Valuation.

The Circuit Court, to which the case was first taken, held with the Waterworks Company on the first five of these counts, but on appeal by both the Commission and the Company to the Wisconsin Supreme Court, the Company loses its contentions except as to the item of interest, which the court holds the Commission's order should have provided for, from the date of the actual taking by the City, to the

date of the payment of the purchase price \$255,000, 2 months and 7 days later, or the sum of \$2,805 and interest thereon to its date of payment.

The Company's contention that the City must pay the costs in case the action for amendment of the Commission's order is decided favorably to the Company is not allowed by the Court, which says on this point:

When, however, a public utility company elects to surrender its franchise and receive an indeterminate permit under the utilities law, it consents to sell its plant to the city at any time when the city desires to take it, and consents also that it will abide by the provisions of the utilities law as to the method of securing its compensation. In effect it embodies all the provisions of the utilities law bearing on the subject into its consent, and agrees to be bound by them. Whether the proceedings by which the compensation is ascertained under the utilities law be called condemnation proceedings or not is a matter of little moment. The property owner has voluntarily consented to be bound by them, and is in no position to complain of them. . . .

Costs are a creature of the statute, and are withheld, unless the statute affirmatively grants them. This statute withholds them. Grant that such a statute would be unconstitutional under the principles of . . . adversary proceedings for condemnation, it is entirely within the power of the property owner to waive his constitutional right, and this he can easily do by voluntarily consenting to sell his property to the city at its option and rely for his compensation upon the remedy which the statute gives, which in this case is an action in which, if successful, he recovers no costs.

314.12—Franchises.

On the point of the company's claim for a franchise value the Court says of the indeterminate permit:

Obviously the term of the indeterminate permit is indefinite and limited only by the happening of the event specified in the statute. The moment the municipality exercises its option to purchase the plant of a public utility operating under an indeterminate permit, the life of such permit is terminated, and henceforth the same possesses no more value than a franchise for a definite term of years upon the expiration of the term. It is manifestly the purpose of the law to relieve a municipality of any and all obligation to make compensation for the privilege of doing business, granted to a public utility, when the municipality determines to acquire the property of such public utility. As the company's privilege of continuing in business has expired, no compensation can be awarded for a right that no longer exists. . . .

The advantages resulting to the public from the possession of an

option to purchase at any time must have been in view. One of those advantages plainly is that there can be no unexpired franchise to be considered or allowed for in case of purchase. To speak of a nonexistent right having value seems a solecism. An indeterminate permit doubtless has value so long as it is in force, depending on the extent of the business, the prospects of growth in the municipality, and the likelihood of its termination in the future by the exercise of the city's option, and other considerations which will occur to any mind. But when the guillotine has fallen on the right, and it becomes but a memory, can it be logically said to have even a nominal value? We have been unable to answer this question in the affirmative.

312.9—Paving Over Mains.

In the matter of paving over mains the commission allowed the estimated cost, \$17,000, of cutting through and relaying permanent pavement over the mains of the company, but refused to include the cost, estimated at \$7,000, of relaying pavements over the service pipes, which according to a rule of the company, consumers had been required to pay for:

The question whether, in estimating the present value of the plant and business, the commission should have taken into consideration the value of the existing permanent pavements over service pipes and the cost of excavating and filling trenches in which to lay service pipes is next to be determined. In order that this question may be clearly understood, a brief statement of facts is necessary. At the time of the taking over of the plant there were 1,827 service pipes attached to the mains; the company had dug and refilled 1,575 of these trenches at its own expense, and patrons had dug and refilled 252 of them under a rule of the company in force during the latter part of its business life, requiring the prospective consumer to pay for such cost. The service pipe here spoken of is that section of pipe between the main and the corporation cock at the curb line. The company has always furnished the curb box, corporation cock, lead connections, curb cocks, and fittings, and performed all the work of making the connections, and formerly furnished the pipe and did the excavating, but since the establishment of the new rule above mentioned the consumer has been required to supply the pipe and do the excavating and filling.

311 3—Present Value.

The question comes into the case in this way: The commission procured from their engineers a careful estimate of the cost of reproducing the plaintiff's plant at the prevailing prices at the time of the decision, and of the present value of the physical property, based on such estimated cost of reproduction, and used these estimates as important, but not controlling, factors in reaching

their final decision as to the just compensation which should be paid. The estimate so made of the actual cost of reproduction amounted to \$282,091, and the estimate of present physical value, based on the cost, amounted to \$242,127. In these estimates the cost of cutting through and relaying permanent pavement over the mains of the company in all streets where such pavements existed, amounted to over \$17,000, was inserted and included in the totals, but the cost of relaying pavements over the service pipes aforesaid (estimated to amount to \$7,000) was not inserted or considered.

311.2—Reproduction Cost New.

The plaintiffs contention is that if cost of reproduction is to be considered it must rightfully include the expenses of opening and relaying the pavement over service pipes as well as over mains, and also the expense of excavating and filling the trenches for service pipes. The circuit court agreed with this contention, and held that the commission should consider these items in arriving at its result. It is argued in support of this view that the service pipe from the main to the corporation cock is unquestionably a part of the company's plant; that in reproducing that plant it would be necessary to excavate and fill new trenches, and to cut through and relay the pavements; and hence, if cost of reproduction is to be used as a basis, or even as a material factor, in determining present value, it should include the cost of reproducing the whole plant. We think it is true that the part of the service pipe above mentioned is part of the plant, whether paid for by the company or by the consumer. In the absence of legislative provision to the contrary, it would not seem reasonable or feasible to make the division between the company's property and the consumer's property at any point short of the corporation cock at the curb. This, however, does not seem to us decisive upon this question.

Cost of reproduction must mean the cost which will be necessarily incurred by a reasonably prudent and careful man, using ordinarily careful business methods, in reproducing a plant of equal efficiency. Anything which, under such a conduct of the business, would cost nothing to reproduce cannot logically be included. It is not denied that if the city or a new water company were to establish a new plant the consumers could be required, as a condition of receiving water service, to do the work in question, and even furnish the pipe. Such a requirement is quite generally enforced at the present time in cities of this class . . .

So it seems that there could be no question but that it would be entirely practicable, and in fact the only reasonably prudent policy, for a new company to require consumers to lay their own service pipes.

This is not the case where land or other property of value has been

voluntarily donated to the old company. With regard to such property it has been held, in cases involving the fixing of rates, that it is rightfully to be considered in arriving at the cost of reproduction. This result is reached on the idea that a new company could not count on receiving such gifts. Whether the logic of these cases be correct or not, we do not decide; but in any event the principle does not apply to expenses which may legally be assessed, and in the exercise of good business judgment ought to be assessed, against the consumer. For purchase purposes at least, the only expenses which should be considered in the estimate of the cost of reproduction are those which are reasonably necessary in a prudently conducted reproduction.

315.1—Going Value.

The court sustains the commission's finding of \$13,000 for going value, and gives the following interesting discussion of this element, which indicates approval of the custom of the Wisconsin Commission of placing a low going value on an unsuccessful plant:

The term "going value" is somewhat vague, and is a comparatively recent addition to the terminology of the subject. It is not the value of the franchise, and it is not the good will of the business; certainly it cannot be the latter in the case of a monopoly like the present. It has been variously spoken of as "the difference between a dead plant and a live one"; . . . or "the element of value which comes from the fact that the property is sold as a going concern"; . . . "the added value because of the company's being a going concern." (Commissioner Roemer in his testimony in the present case.)

311.3—Present Value.

The existence of the term as designating a substantial element of value seems to be largely due to the fact that in appraisal cases like the present, as well as in rate-making cases, there has been a very general adoption, both by courts and commissioners, of the plan of ascertaining by expert evidence the cost of reproduction of the existing plant, and then making a deduction for depreciation, and thus arriving at what is called the present physical valuation. This has been universally recognized, not as fixing the present physical value of the property or the business, but only as an important and helpful consideration which may throw much light on the question. It has the advantage of comparative ease and certainty of ascertainment. It is said by Whitten (*Valuation Pub. Serv. Corps.* § 639) to be at present the most generally accepted basis of valuation for purchase or rate making. Construing the word "basis" to mean simply a fundamental fact or starting point not in any sense exclusive or controlling, the statement seems to be substantially correct. Important as it may be, however, this physical valuation so obtained is but one of numerous facts to be considered in reaching the final result.

331.5—Net Earnings Rule.

The commercial value of the business in full operation and entitled to charge reasonable rates for its service must, however, be considered as approximating the compensation which should be allowed for the property; in other words, the sum which the business should be capitalized for in order that the owner should receive a reasonable return on the investment, when the business is conducted with reasonable business skill, and charges such reasonable rates for service as the law permits.

315.1—Going Value.

If this value exceeds the physical value of the tangible property, then it might be said that the difference ought to be the measure of the indefinite and intangible thing called "going value," and such has sometimes been considered the best way to arrive at the going value. Again, it has been thought that going value might be measured by ascertaining as nearly as possible the cost of reproducing the existing business, sometimes called the "unrequited outlay," i. e., the amount of the deficits which would be incurred added to the promotion expenses necessary to be incurred up to the time the new plant would have a business equal to that of the present plant; or, again, by ascertaining the actual unrequited outlay in building up the present business; or, again, by ascertaining the average time and proportional outlay actually incurred in building up the business of a number of concerns of like character, and thus establishing what may be called a "curve," which can be used in determining the time and outlay which would be reasonable in the instant case. It is quite apparent that the results reached by either of the suggested methods could hardly be considered anything more than suggestive, and that its persuasiveness would necessarily depend upon many other facts which must enter into the general problem of value. The actual original cost of establishing the business of the existing plant is very clearly unsatisfactory to the last degree as a test of going value, because it may have been wasteful and extravagant, and because, also, it is well known that the building up of a water plant 30 years ago, before sewerage systems had become common and the private water supply had been discredited, was a much slower process than at the present time, when in such a city as Appleton the population had been educated to use the public supply of water. Estimates of cost of working up a business under present conditions approach nearer to the requirements of a test, but they must always remain estimates, however carefully they may be conducted; they cannot be called facts.

However, the fundamental difficulty with the attempt to set a definite sum as the measure of going value is that it is an attempt to divide a thing which is, in its nature, practically indivisible. The value of the plant and the business is an indivisible gross amount; it is not obtained by adding up a number of separate

items, but by taking a comprehensive view of each and all of the elements of property, tangible and intangible, including property rights, and considering them all, not as separate things, but as inseparable parts of one harmonious entity, and exercising the judgment as to the value of that entity. In this way the going value goes into the final result, but it would be difficult for even an expert to say how many dollars of the result represent it.

In the case before us it is quite apparent from the report of the commission that the commissioners fully appreciated this cardinal principle of valuation.

They had before them much evidence bearing upon the general question of value and just compensation from different angles; they had the very careful and elaborate estimates of their engineers, not only as to the cost of the reproduction of the plant and its present value, based on present prices, but also based on the average of prices for five years; they had all the testimony given in the rate case, showing inadequacy in the present plant to meet the reasonable demands of the public service and the necessity of the immediate expenditure of at least \$50,000 to make the plant reasonably efficient; they had tabulated statements furnished by the company itself in the rate case, which tended strongly to show that the revenues of the plant had not been sufficient at any time to give anything more than an insignificant return upon the investment, if indeed they had given that; they had very complete information as to the condition of the physical property, the attitude of the public toward the concern, the probable growth of the city, and in fact of all the surroundings; they had also expert evidence as to the actual unrequited cost of building up the business of the plant, and expert evidence on both sides as to the probably unrequited cost in building up the same business with a new plant under present conditions, which estimates differed by many thousands of dollars. All of this testimony was considered by the commission in passing upon the ultimate question of value; it seems very clear to us from the report of the commission that all the facts in evidence bearing on the question of value were carefully weighed by the commission; we discover nothing to indicate that the commission acted on any mistaken basis in reaching the conclusion that \$255,000 was the fair and just compensation which should be paid for the plant.

COMMISSION DECISIONS

31—Valuation.

NEBRASKA

Application of the LINCOLN TELEPHONE AND TELEGRAPH COMPANY for Permission to Consolidate the Telephone Lines in Lincoln, Nebraska, and to Increase Rates. Decision of the NEBRASKA STATE RAILWAY COMMISSION, Approving the Consolidation, Fixing Valuation and Increasing the Rates. June 26, 1913.

This decision clearly records the conviction of the Commission that a

regulated monopoly in the telephone business is the only proper basis of rendering this service; and the thorough investigation and labor expended by the Commission on the questions involved, the results of which are reported in detail in the opinion, make this case an interesting one for all electrical companies.

The method of valuation used was the reproduction cost with deduction for depreciation; and noteworthy rulings are made on overhead charges, reasonable allowance for construction in advance of present needs, with analysis of depreciation and maintenance costs, fixed and operating expenses and rate of return. The following paragraphs cover these points:

313—Overhead Charges

The taking of testimony developed considerable controversy with regard to the question of general expense items entering into the values, and this controversy was apparently founded on the suspicion that the amounts allowed for general expense, or so-called overhead items, was excessive. The Commission is convinced that the amount of 17.2 per cent. for general expenditures allowed by our engineers is conservative, particularly in view of the manner in which they have built up their unit cost. It is generally in line with the accepted percentages and theories of commissions and regulating bodies of other jurisdictions, many of which allow over 20 per cent. for these items. In the case of the taking over of the telephones of the Kingdom by the Crown, the Commissioners in Great Britain allowed for this item 26 per cent.

Various Commissions, as well as many of the prominent engineers of the country, apply the general expenses in this way, others include or conceal such expenditures in the units of costs, thereby producing apparently smaller percentages for overhead expenses, and when so treated in a valuation there will be apparently no general charges whatever. In other cases part of the general expenses are applied to the unit price and another part is set up as general expense, which thus makes it appear as though a lower ratio of general expense had been applied in the valuation. Thus in the case of Wisconsin, which during the hearing was quoted as allowing only 12 per cent., it was found that that Commission does in fact allow as much as 15 per cent. for the so-called overhead items, and that as much as 10 per cent. in addition is first applied to the units, thus bringing the range of allowances, depending upon the particular utility under consideration, from 19 to 25 per cent. We quote from an address delivered in Chicago, March 24, 1913, by Mr. Commissioner Halford Erickson:

“As to overhead expenses, that is also a matter, I think, that is not quite understood. The Wisconsin Commission in the case of small utilities where they have a great deal of difficult city work to do, crossing rivers and work of that kind which often involves considerable risk, we allow 15 per cent. That, however, is the figure which is apparent, which is visible in determining the unit price

upon which to compute the cost of the various elements. We nearly always allow 10 per cent. for contractor's profit. That is an element which entered into the cost as a whole and is not given separately. However, if that were taken out of the unit prices where it appears, and added to the 12 per cent., that figure would be considerably increased. It might not add 10 per cent. to that figure, but it probably would add 8 per cent. or 7 per cent., sometimes 9 per cent., so that the overhead expense used by us is considerably higher than 12 per cent. We have explained that on several occasions, but it appears perhaps that our practice is not quite understood." . . .

318—Working Capital

No telephone business can be properly conducted without a certain amount of working capital, in the form of cash in banks and accounts receivable. . . .

From studies made the Commission feels that an allowance of about \$109,000.00 for working capital, together with stores and supplies, for a company of this size, would seem reasonably necessary; such allowance would be the equivalent of 6 per cent. on the reproduction value. . . .

317—Construction in Advance of Present Needs

Investigation of the affairs of many of the telephone companies in cities above 20,000 population, demonstrates clearly that every prudently projected plant has more or less idle plant intended for future development, and it is necessary, in order to be able to efficiently serve the public and meet promptly increases in the demands, that this should be so. There are, of course, limits within which such advance construction will be reasonable, and when it is reasonable there can be no question but that the corporation is entitled to consider it as part of the plant upon which it shall be entitled to make earnings. A section of the community which decides to take the service of the company, say to the extent of eighty subscribers, would be very foolish to insist that the company should only lay a cable of sufficient capacity to serve that eighty, and then within a few months, when ten or twenty additional subscribers appear, that the company should be required to practically do the same work over in laying the further extensions for another twenty subscribers. To add a cable of the exact capacity would be foolishly taxing themselves for extra costs which, when projecting plant beyond the actual present needs within reason, will result in much lower costs on the average, and tax the users during the interim for only a slight additional amount of temporarily idle plant. . . .

312—Physical Inventory

The physical valuation made in this state was made in strict accord with the law, and this is so generally with physical valuations made in other jurisdictions. This manner of arriving at the pres-

ent value of properties as one of the principal factors, has also the sanction of our federal government, as instanced by the law recently passed. . . .

It is the interpretation of this Commission that the reason for adopting this plan of arriving at present values is because in a very large percentage of the public utilities, applying especially to the older companies, it is impossible to reach the actual cost from an examination of the books, for various reasons. One of the principal reasons arises because of the varying policies pursued by the different corporations in the matter of charging additions and betterments, and in the matter of treating replacement and construction accounts; in all of which that have heretofore been examined, it has developed that because of the lack of uniform accounting systems each corporation has set up its own policies and theories, which seldom conform to the present accepted theories of setting up these accounts. A further reason is because prior to regulation many of the corporations paid little attention to the actual values in the issues of stocks and bonds, and in such cases it would be absolutely impossible to trace out all the intermediate steps and manipulations and reach a correct result.

The suspicion held on the part of some that physical valuations will be newly made at each controversy or hearing that may come up in regard to any particular plant is also unfounded under the interpretation placed upon the law by this Commission.

222.3—Method of Keeping Accounts

Practically concurrent with the enactment of the laws regarding the making of physical valuations in this and other jurisdictions, as well as by the federal government, there were promulgated accounting systems, which will make impossible any manipulations that may have been practiced in the past, and will set out definitely by sharp lines of demarcation the differences between construction, betterments, maintenance, depreciation and operating expenses. The physical valuation is, in fact, made for the purpose of reaching a definite starting point which will be equitable as between companies and the public, and in case any controversies arise in the future which shall make it necessary to know at the time the value of the plant, the physical valuation first taken under the authority of these laws will be used as the foundation, and never deviated from, it being merely necessary to add the definitely set up additions and betterments, after deducting plant abandoned or no longer used for the service of the public, to find the then actual value of the plant. . . .

(The remainder of this decision, including the rulings on depreciation and rate of return, will be given in the next number of RATE RESEARCH.)

784—

LAMP EFFICIENCY—ENGLAND.

REPORT OF EXPERIMENTS ON TUNGSTEN FILAMENT GLOW LAMPS, carried out by the National Physical Laboratory, London, England, for the Engineering Standards Committee. April, 1913. Published by Crosby Lockwood and Son, London. Price, £1/1/9. Postpaid (in 2 parts.)

These tests were undertaken at the request of the Sectional Committee on Electrical Plant, of the Engineering Standards Committee, a joint committee supported by the five national engineering societies of England, for the purpose of obtaining exact information needful for the drafting of a general specification for Electric Glow Lamps, both carbon and tungsten filament, to complete the work which resulted in fixing the existing British Standard Specification for Carbon Filament Glow Lamps.

The object of the tests described in this report have been:

(A) To obtain data as to the degree of uniformity existing at the present time in the individual lamps composing batches of metallic filament lamps if given nominal ratings.

(B) To obtain data as to the behavior of metallic filament lamps on life test—mainly with a view of ascertaining the value of watts per candle on life test which corresponds to a given candle power drop after 1,000 hours.

These two considerations are quite distinct and are dealt with in separate sections of the report.

The information here given in tables and text is extensive and authoritative; the second part is composed of plates showing the results.

REFERENCES**RATES****41—Cost of Service.**

FALLACY OF COMPARATIVE STATISTICS. INJUSTICE OF TRYING TO FIX RATES OF ONE CITY BY OTHERS. *Public Service*, 2½ pages, August, 1913, page 53.

This article comments on the faultiness of trying to base the cost of public utility service in one city on the rate another city is paying, and states that this method has been effectively scored by the Wisconsin Commission in the case of the Superior Commercial Club v. The Superior W. L. & P. Co., discussed in 2 RATE RESEARCH, 129-137. An outline of the Commission's comparisons of conditions in Duluth and Superior, their valuations and their deductions is given.

514—Demand Basis.

POWER BILL CHART FOR A TWO-RATE SCHEDULE, by E. D. DREYFUS, *Electrical Review*, 1½ pages. August 9, 1913, p. 270.

The article comments on the wide variance, with different services, localities, and systems, of the derived unit rates for the primary and secondary charges for electric power. The chart given shows the net results obtaining under different combinations of demand and energy charges, and allows a rapid and convenient graphical determination of the total monthly bill. There are four conditions involved: (1) the probable demand; (2) the probable consumption according to load factor or hours' use of the demand; (3) charge per kilowatt demand; (4) charge per kilowatt-hour for the energy. The chart assumes for the example (1) 800 kilowatt demand; (2) 51 per cent load-factor; (3) \$1.33 per kilowatt demand; (4) 0.8 per cent energy charge.

62—Character of Service.

ELECTRICITY IN PIANO FACTORIES, *Electrical Review*, illustrated article, 5½ pages, August 9, 1913, p. 263.

This discusses the advantages of electric motor drive in the manufacture of pianos with reference to space economy, reduced fire risk, and increased production at lower power cost, where central-station power is purchased. The selection of the proper motors for driving wood-working machines used in piano factories, is described. Data on three such installations are given.

INVESTMENT AND RETURN**228—Franchises.**

OMAHA GAS FRANCHISE CONTROVERSY. *Public Service*, 2¼ pages. August, 1913. p. 56.

This is an abstract of the provisions of the ordinance granting the franchise to the Gas Company in Omaha, Nebraska, which is to be submitted to the voters of the city on August 19. It is opposed by some political elements in the city, though it provides for a rate of \$1 per thousand for gas as against the present rate of \$1.15, for the payment by the company of 5 per cent of its gross revenues to the city as an annuity, and the provision that in case the city acquires the plant by appraisalment or by condemnation proceedings, "no value shall be placed upon the franchise, which shall not be considered in arriving at the price"; and that in the future no contract for rates shall be for longer than ten years, no minimum term for such contract being specified, so that it may be for as short a period as may be mutually agreed between the City Council and the Company.

228—Franchises.

THE NEWARK TERMINAL REPORT, Editorial, *Electrical Railway Journal*, July 26, 1913, p. 127.

This states that the objections, contained in Dr. Delos F. Wilcox's report on the street car congestion in Newark, to the Public Service Company's plan for an interurban terminal station, are not of sufficient force to condemn the proposed system, which would greatly relieve the present excessive overcrowding in the business district. Dr. Wilcox's report is a very thorough discussion of the whole situation, including the legal status of the problems involved in the various franchises, a study of the physical layout and growth of the city, consideration of the powers of regulation both local and of the State Utility Commission; and suggests a comprehensive plan for re-routing the trolley lines as a better measure than the proposed terminal. In case, however, the latter is to be approved, the recommendation is made to the city, that there should be provisions in the franchise under which the city would have the right to take over the system, to compel the re-routing of cars, and to legally compel the construction of short extensions.

31—Valuation.

THE MINNESOTA RATE CASES DECISION AS RELATING TO APPRAISAL AND TO RATE MAKING. *Engineering and Contracting*, 6 pages. August 6, 1913. p. 144.

This is a reprint of the decision of the United States Supreme Court in the Minnesota Railways case, see 3 RATE RESEARCH, 195 and 266, in so far as it

relates to appraisal and to rate making. The part of the decision which is here omitted is that which affirms the right of States to regulate rates even though they do interfere directly with interstate commerce, a question of less immediate relevance to electric companies.

36—Depreciation.

THE VITAL DISTINCTION BETWEEN "FUNCTIONAL DEPRECIATION" AND "NATURAL DEPRECIATION." Editorial, *Engineering and Contracting*, $\frac{2}{3}$ page, August 6, 1913, p. 141.

This gives some clear and interesting considerations to be used in estimating depreciation, which is divided into natural depreciation defined, as the loss of plant value resulting from the forces of nature such as oxidation by rotting and rusting, from wear and tear, etc., and functional depreciation or loss of plant value due to reduced economic efficiency as an industrial instrument of production. Functional depreciation is then fully discussed, its several causes stated as

- (a) Obsolescence
- (b) Inadequacy
- (c) Decreased Use
- (d) Drop in Price;

and illustrations of these are given. Accrued functional depreciation of a given machine is measured by comparing its unit cost of productivity with that of the most efficient machine available. This rule is comprehensive except as to the loss from "decreased use," as in the case of mine machinery which ceases to be used when the mine is exhausted, and the better term to cover this may be amortization. Future functional depreciation, however, must necessarily be found by the use of mortality tables of estimated life of plant units.

PUBLIC SERVICE REGULATION

2—Public Service Regulation.

SPECIAL REPORT OF THE MASSACHUSETTS BOARD OF GAS AND ELECTRIC LIGHT COMMISSIONERS SUBMITTING A CONSOLIDATION OF THE GENERAL LAWS PERTAINING TO THE MANUFACTURE, TRANSMISSION, DISTRIBUTION AND SALE OF GAS AND ELECTRICITY AND TO CORPORATIONS ENGAGED THEREIN. Pamphlet, 90 pages. January 15, 1913.

This is a suggested consolidation of the Gas and Electric laws of Massachusetts made necessary by the important changes and additions since the enactment of the Revised Laws, and the desirability of having this body of the law readily accessible and intelligible. The Commission held five public hearings, notices of which were sent to all parties interested. The report gives a full discussion of the suggestions made at the public hearings and the reasons of the board for accepting or rejecting them. An abstract of this report was given in 2 R. R. 295.

GENERAL

91—Promotion and Growth of the Business.

WISCONSIN GAS PROGRESS, by I. R. WORTENDYKE. President's address before the recent meeting of the Wisconsin Gas Association. *The Gas Age*, $\frac{1}{2}$ page, August 1, 1913, p. 109.

This paper comments on the fact that the four years under commission supervision have shown that in nearly all instances fair prices have been in force and efficient service rendered; that the Commission findings have done much to make the public more generally recognize the utilities as useful public servants; and that all the experience of the past four years demonstrates the wisdom of pub-

licity of semi-public business, especially as such business is now acknowledged to be a natural monopoly. The trend toward decrease in prices and improvement in service is discussed, with the progress made in the sales, advertising, and accounting departments; and the plan proposed that a joint committee be appointed to look after such matters as touch both gas and electric interests.

91—Promotion and Growth of Business.

RECIPROCITY BETWEEN MUNICIPALITIES AND PUBLIC SERVICE COMPANIES, by RICHARD SCHADELEE. *Public Service*, 13¼ pages. August, 1913, p. 49.

This outlines the forces and methods which have resulted in the decreased rates for gas as compared with prices of the last twenty years or more, though the costs of materials and labor have risen. The increased efficiency and economy of operation of present gas companies, as compared to the past, and the enormous increase in the sales of gas for numerous purposes, with the policy of large sales with small profits have been responsible for the lower prices. The necessity for some such arrangement as a sliding scale of rates and dividends or other advisedly planned regulation is insisted upon, as against such regulation as would limit a public service company to a fixed return on its investment, and by killing incentive for improvement or extension of service, or lowering of rates, cause stagnation or decline of the business. The increasing at the present day of syndicate operation of utilities is becoming a large factor in lowering the cost of service.

91—Promotion and Growth of the Business.

TREND TOWARD UTILITY MONOPOLY; CHANGE IN PUBLIC SENTIMENT REGARDING PUBLIC SERVICE COMPETITION, by BERNARD E. SUNNY. *Public Service*. 1½ pages. August, 1913. p. 47.

This states that the anti-trust laws which were passed in such numbers about twenty-five years ago were called forth by the conditions which prevailed then, in response to the demand for the correction of errors and evils occurring at that time, when it may be said American business in utilities was finding itself. Notably such legislation, prohibiting consolidations of competing enterprises, rate agreements or any combination of any kind which would tend to eliminate competition, put a stop to the building of competing railways, electric light, gas and other public service properties, a considerable number of which were built to sell out or unload to the older companies at a big profit. Whereas in those years almost every Western city had from two to five electric light plants, sometimes occupying different zones, but in most cases in active competition, with nevertheless high prices due to the inefficiency of appliances and methods, and poor load factor, now a remarkable change from this situation is apparent due to consolidations made with the general consent of the municipalities which have learned that monopoly is the sane and economic method of furnishing such service. Mention is given of laws and court decisions showing present day recognition of this principle.

98—Public Relations.

AN ANALYSIS OF SOME COMPLAINTS AND GRIEVANCES OF CENTRAL-STATION CUSTOMERS, by A. R. CORDNER, *Electrical Review*, 2½ pages. August 9, 1913, p. 268.

This discusses the complaints made to central stations and the tactful and correct way of handling them. Emphasis is placed upon the responsibility of employees of every rank in giving careful consideration to the complaint while defending the honesty of the company. Numerous examples of unusual complaints with their subsequently discovered causes, are given.

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Rate Research

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CONTENTS	Page
COMMISSION DECISIONS.....	323
Massachusetts.....	323
New York (1st D.).....	326
COMMISSION REPORTS of DECISIONS.....	327
Michigan.....	327
California.....	329
COURT DECISIONS.....	331
United States Supreme Court.....	331
Nebraska.....	332
Alabama.....	332
REFERENCES.....	333
Rates.....	333
Investment and Return.....	334
Public Service Regulation.....	335
General.....	335

Rate Research

Vol. 3.

CHICAGO, AUGUST 20, 1913

No. 21

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

COMMISSION DECISIONS

MASSACHUSETTS

4—Rate Theory.

Complaint against the EDISON ELECTRIC ILLUMINATING COMPANY OF BROCKTON (pop. 56,878), Alleging Excessive Rates. Decision of THE MASSACHUSETTS BOARD OF GAS AND ELECTRIC LIGHT COMMISSIONERS, Reducing the Rates. July 28, 1913.

This is a complaint brought by customers against the rates and the system of charging used by the Company. The lighting rates which have been in force started with a gross rate of $16\frac{2}{3}$ cents per kilowatt-hour for the first 30 hours monthly use of the connected load, and 10 cents per kilowatt-hour for excess use, with a ten per cent. prompt payment discount, a minimum charge of \$1 per month, lamp renewals free of carbon and gem lamps, and tungstens at cost. The power rates, for 1 to 10 horse power in motors, ranged from 15 to 5 cents per kilowatt-hour according to monthly consumption, with minimum charge of \$1 per horse power per month; for 10 horse power and up in motors demand charge of \$1.25 per kilowatt of maximum demand plus energy charge of 3 cents per kilowatt-hour consumed, subject to a sliding scale of discounts running as high as 44 per cent. according to size of installations, minimum charge of \$1.25 per month per kilowatt of maximum demand.

The Commission orders a maximum net rate of 12 cents per kilowatt-hour.

The essentials of the decision are as follows:

523.1—Connected Load Basis.

At the hearings, several customers brought to the attention of the Board their particular grievances against the company. With one exception they were lighting customers using comparatively little electricity, and their complaints seem to have arisen to a considerable extent because of a misunderstanding and distrust of the company's determination of their connected load. It appeared to be the company's usual practice to determine a customer's connected load by ascertaining the aggregate wattage of lamps installed. Inquiry seems to prove that the connected loads used by the company in these particular cases correspond with the respective wattage of the customer's lamps. This fact, however, does not fully account for the cause of the complaint. The diffi-

culty lies rather in the system of charging adopted by this company and the particular method of its application, which gives rise to a conviction on the part of some customers that others who use electricity under similar conditions are getting an advantage over them. This seems to result from the fact that a customer's rate depends not upon the amount used but upon the relation of that amount to his connected load. As the ratio of his consumption to his connected load for any month increases, the average price to him per kilowatt-hour decreases. Consequently two customers having lamps of equivalent wattage installed, but used for a different number of hours in the same month, may be charged different prices. The same result may follow where two customers use equal amounts of electricity but have installations of unequal wattage.

6—Rate Differentials.

The Board has had occasion frequently to consider and discuss in its decisions differential prices for electricity. It has admitted the general truth of the proposition so commonly urged that, other conditions being equal, length of use of a given demand has an influence upon the company's costs. It has appreciated the weight of the appeal made to the commercial enterprise of a company's management to make prices that will attract business, and it has recognized the importance and desirability, in the interests of all its customers, of increasing output without proportionately increasing investment, in order thereby to decrease the average cost of the electricity produced and sold.

514—Demand Basis.

But the Board is at the same time convinced that a mere difference in the quantity used does not of itself constitute such a difference in condition as to justify a difference in price; that differences in lamp installations are exceedingly unreliable indications of actual differences in demand, and that whatever may be said as to the importance of the length of use of a given demand, unless variations in use are sufficiently marked, their influence upon cost is slight, and, as a foundation for differences in price, probably negligible.

45—Value of Service Theory.

Indeed, differences in price were made seem to be based upon considerations of commercial expediency rather than a purpose to establish prices which shall charge each customer as much and no more than he should pay.

514.3—Wright Demand Rate.

From an examination and analysis of this company's business it appears that nearly 90 per cent. of the company's customers are interested in the maximum net price of 15 cents. More than one-half of this 90 per cent. do not seem to make that use of electricity which, in view of their connected load, entitles them to the secondary rate. Even those business and residence customers who become

entitled to the secondary rate appear to pay average prices exceeding 11 and 12 cents respectively.

65—Discrimination.

On the other hand, certain customers who enjoy the advantage of special rates and long-term contracts are charged prices which average much lower. Doubtless many of the latter are not strictly dependent upon the company for a supply of electricity; but to a large extent the former [retail lighting customers] are, and the company should serve their needs and convenience without discrimination, and charge them no more than a reasonable price.

531.1—Straight Line Meter Rate.

In view of these facts and conditions it does not seem an unreasonable conclusion that the customers who are dependent upon the company for their supply do not use electricity under conditions so unlike as to make a uniform meter rate work any injustice to them. Neither is there any sufficient advantage in the present two-rate system for small users of electricity to compensate for the misunderstandings and complications which it introduces, especially when the basis for its application is the connected load determined by the wattage of installed lamps. The Board also believes that the value of the small user to the company, particularly in residence lighting, and the importance of lower prices to develop this class of business, have been underestimated. If it be inexpedient for any reasons to urge or require an immediate elimination of all differences in price, yet, as a first and essential step in the right direction, the Board is of the opinion that the company should offer to sell electricity to all its customers for any use at a uniform price; and that if the present schedules or similar schedules are continued, and a customer elects to be served under them, he shall not in any event be charged an average price, unless as the result of a minimum charge, in excess of such uniform price.

65—Discrimination.

Some criticism was offered at the hearings of the special rates which certain customers enjoy, and of the rate at which the company is selling electricity to the Abington and Rockland company. There can be no real justification for any departure from the established schedules of prices or for giving any advantage, directly or indirectly, to one customer not offered to others enjoying or seeking the company's service under like conditions. The Board therefore recommends that all special rates be discontinued as promptly as may be consistent with the fulfillment of existing contracts which cannot legally be cancelled.

45—Value of Service Theory.

The Abington and Rockland company is under the same management as the Brockton company. The terms of the contract by which the latter sells electricity to the former were not arranged,

therefore, as a result of independent bargaining. Nothing, however, developed at the hearing or in the Board's own examination of the affairs of the two companies to justify the conclusion that the Abington company is paying substantially less for its electricity than it would cost if generated by that company in properly equipped works. In any event, it is clear that, if this business is done at a loss to the Brockton company, it cannot make good this loss out of its commercial customers, and the Board has recognized the weight of this proposition in the conclusion which it has reached. . . .

35—Total Revenue, Expense, Income.

The Board's investigation of the Company's business shows that during the last five years its output has greatly increased, its load factor improved and in its production costs have been considerably decreased, giving a consequent steady increase in its net earnings, notwithstanding substantial expenditures in operating accounts for repairs and renewals, and that dividends increasing from 6% in 1908 to 8% in 1912 have been declared.

729—Maximum Rate.

The Board therefore recommends that the net price charged for electricity sold by the Edison Electric Illuminating Company of Brockton, on and after the first day of August, 1913, shall not exceed 12 cents a kilowatt-hour.

NEW YORK (1st D.)

56—Standard Riders.

Complaint against the UNITED ELECTRIC LIGHT AND POWER COMPANY, New York City, for Refusal to Furnish Service Under the Terms of Certain Riders to Its Contracts. Decision of the NEW YORK PUBLIC SERVICE COMMISSION (1st District) Ordering the Riders to Be Cancelled.

The Commission's order requires the cancelling of three riders, No. 20, "Inclusion of Tenants Consumption—Wholesale Rate," which was pronounced to be discriminatory in favor of the landlords, who under it, were enabled to procure their own current for less than their tenants could procure it; No. 22, "Conjunctional Service," which provides that all current consumed in buildings under a common ownership or leasehold not more than 100 feet apart served from a single center of distribution, may be taken collectively in determining the rate to be paid; and No. 24, "Inclusion of Tenants Consumption—General Rate," which was held to be unjust and unreasonable because it gives landlords an opportunity to make a profit on the current consumed by their tenants, and also because one objecting tenant could prevent the landlord and all the other tenants from getting the benefits of its provisions. The Commission ruled that Riders No. 20 and No. 24, should not be reissued, but No. 22 may be re-established if made available equally to small and large consumers.

253—COMMISSION REPORTS OF DECISIONS**MICHIGAN**

ORDERS AND OPINIONS ISSUED BY THE MICHIGAN RAILROAD COMMISSION from April 1, 1913, to June 30, 1913. Volume 2, No. 1, pp. 1-144.

This is the latest number of the Quarterly Reports of Decisions of this Commission. The regulation recorded here has mostly to do with railroad and telephone cases, the only questions which have arisen pertaining to electric companies being issues of stock and bonds.

221.1—Issue of Stock and Bonds.

In one such application, that of the Northern Michigan Power Company, pages 25-34, a hydroelectric development project expected to deliver 57,000,000 kilowatt-hours per year, the results are given of a thorough investigation of the proposed plan both as to physical properties, and financing, in detailed estimates of all values and expenses properly capitalizable, and there is included an interesting discussion of the various items of overhead charges and of going value. The Commission's views on these points are stated in part as follows:

314.1—Promotion.

Another item which it seems to the Commission is properly included in the value of lands for hydraulic purposes, under the Commission's general designation of "reasonable compensation for the time, energy and ability bestowed in their acquisition," is the item quite generally denominated "promoter's profit," but which this Commission believes would be more truly descriptive if denominated "cost of promotion." The man who devotes his genius to enlisting support for great enterprises of public benefit, which his clearer foresight and keener vision has first perceived in the great world of material development, has performed services quite as valuable to the public as the engineer who later makes computations, plans and specifications, or the man who in any other position contributes to the creation of the utility. . . .

315.1—Going Value.

The problem involved in the question of allowance for initial operating deficit, or what is more generally described as cost of securing going concern value, is far more difficult of solution. It is the reasonable contention of petitioner that upon the completion of its facilities, under the most favorable conditions, it cannot anticipate business and resulting revenue sufficient to pay operating expenses, care for depreciation, and make a return upon the capital invested. That on the other hand it must anticipate a deficit of the amount by which its earnings fail to meet this adequate return; that this deficit constitutes the cost of building up the business of the concern; that in their totality they must be contributed by the stockholders,—that it forms an integral part of the investment, and may as justly be capitalized as capital contributed for the creation of the

physical facilities, [or] as loss of interest during the period of construction.

Authorities of equal eminence are not in accord as to whether such deficits should be capitalized and thus made a permanent charge, or whether they should be carried as a liability of other form and gradually written off from the earnings when these earnings have so increased as to leave a surplus over and above the amount necessary for the maintenance of the utility.

The Wisconsin Commission in a well considered opinion involving the question has said "Either plan may be feasible. As to which one is preferable is a question that depends upon the circumstances in such particular case."

Hill et al. vs. Antigo Water Co., 3 Wis. R. C. R., Page 713.

Without entering at length into an elaboration of the reasoning used to support either theory, we give our approval to the proposition stated in the quotation made.

This question, so far as adjudicated cases are concerned, had received its principal discussion in cases involving reasonable rates. It is a question that has generally been considered in retrospect rather than in prospect; from the standpoint of reasonable rates rather than from the standpoint of capitalization. Where a given utility has been constructed with economy; timed in its operations to meet an adequate demand for its output and promptly enabled to earn fair to large profits at reasonable rates, reasons have been found to justify a very different rule as to going concern value from the rule which should in principle be imposed in the case of another utility, timed in its construction upon a miscalculation of public need; subject to destructive competition or the many conceivable causes that would give it a going concern value of less than the investment. Both cases are perhaps to a degree abnormal. In the one case the amortization of the operating deficit from surplus earnings would be clearly justified, while in the latter case to so require would be to so increase rates as to still further curtail an already scant corporate return. Such cases which because of the dissimilarity of their basic conditions give rise to divergence of views as to the principle which should govern, to our minds are peculiarly for the consideration of the authority in the State vested with the regulation of rates. Boards or Commissions acting in rate regulation, with all the facts before them, are in a position to adjust all abnormalities in a manner fitted to each particular case.

This but emphasizes the necessity for a uniformity of treatment for the great general average of cases by authorities regulating capitalization in the initial stages of corporate development. In view of the condition [with] which common experience shows practically every public utility is confronted in acquiring business in the early months of their operations, we believe that the best interests of both the corporation and the rate paying public will be served by allow-

ing a reasonable sum to be added to capital in the first instance to meet the cost of acquiring business. The sum so allowed should not be so large as to encourage waste, improvident investment, or to even provide for all possible deficits from initial operations, but it should be large enough to encourage investments that are economically sound and which will result in the needed development of the State's material resources. The sum allowed should be treated as an investment,—an investment to be sure, in things that are intangible but as necessary for the creation of the active moving business as the money invested in the physical facilities. To provide this sum, we believe that a sum equal to seven per cent. on the estimated cost of the development is a reasonable allowance in advance of operations. If time demonstrates that because of unusual or peculiar conditions this allowance is insufficient, the authority then exercising control will be in position to make proper adjustment of the problem by either requiring it to be paid from earnings or added to capital as the best interests of the utility and the public may dictate. . . .

221.1—Issue of Stocks and Bonds.

The capitalization allowed is summarized as follows:

(1)	Lands and flowage rights	\$1,450,000
(2)	Construction	4,275,701
(3)	Overhead charges	1,520,396
		<hr/>
		\$7,246,097
(4)	For operating deficits	507,226
		<hr/>
		\$7,753,323

On the basis of dividing this sum into one-half stock at par and one-half bonds at 75% there would be required, stock to the amount of \$3,876,661 and bonds of the par value of \$5,168,881 or a total of stock and bonds of the amount of \$9,045,542.

The estimated income is given by the Company as that of the sale of their entire output 57,000,000 kilowatt-hours, at 1.5 cents per kilowatt-hour. The Commission says, however, that its investigations have revealed the fact that there are many hydroelectric and even steam plants that are selling current at prices materially less than 1.3 cents per kilowatt-hour, and considers this more conservative figure in checking the capital allowances made.

CALIFORNIA

DECISIONS OF THE RAILROAD COMMISSION OF THE STATE OF CALIFORNIA. Volume 1, January 1, 1911, to December 31, 1912. 1132 pp., \$1.50.

This is the first volume of the Decisions of the California Commission. The arrangement of the material is excellent, and an exhaustive

index, which includes the classification under headings of all the important points in the decisions, makes the contents of the volume easily accessible. Decisions interesting to electrical companies are:

	Page
Application of the Central California Gas Company, for an Order Authorizing the Issuance of Bonds and Preferred Stock.	135
Granted.	
(See 2 RATE RESEARCH 195.)	
Complaint of the Pacific Gas and Electric Company vs. The Great Western Power Company, to Restrain the Latter from Entering Territory Served by the Former.	203
The new company is allowed in this case to enter the territory, but the Commission's adherence to the general principle that a company adequately serving the public should be protected from competition, is recorded.	
(See 2 RATE RESEARCH 208.)	
Application of the Oro Electric Corporation to Exercise Franchises to Supply Electricity in Territory Already Served in Part	253
Granted in part. Protection from competition is upheld, dependent upon adequate service and reasonable rates.	
(See 3 RATE RESEARCH 227.)	
Application of Mt. Whitney Power and Electric Company, for an Order Authorizing an Additional Form of Meter Contract.	646
Granted. Minimum charge approved.	
(See 3 RATE RESEARCH 239.)	
Commission Orders Electric Railways to File Complete Inventories and Cost Appraisals of their Properties with the Commission	783
(See 2 RATE RESEARCH 118.)	
Application of Coast Valleys Gas and Electric Company, and King City Water, Light and Power Company, to Sell All of the Property of the Latter, to the Former Company.	839
Granted.	
(See 2 RATE RESEARCH 194.)	
Application of the Hawthorne Electric and Water Company for the Establishment of Rates.	972
Granted. Minimum charge approved.	
(See 2 RATE RESEARCH 239.)	
Complaint of the Town of Willits vs. Willits Water and Power Company, Alleging Excessive and Discriminatory Rates.	1020

Rates adjusted, with important rulings on valuation, fixed charges, rate differentials, and the value of service theory.
(See 2 RATE RESEARCH 289.)

Application of the Northern California Power Company (Redding, California) for Permission to Increase its Rates for Electric Power in Certain Parts of its Territory..... 1035
Complete schedules ordered by Commission.
(See 2 RATE RESEARCH 271.)

COURT DECISIONS

UNITED STATES SUPREME COURT

228—Franchises.

OLD COLONY TRUST COMPANY, Appellant, v. CITY OF OMAHA. Suit to Enjoin the Municipality from Interfering with Electric Company's Franchise. Decision of the UNITED STATES SUPREME COURT, Sustaining the Company's Franchise Rights. June 16, 1913. 33 Sup. Ct., 967.

81—Municipal Regulation of Utilities.

This suit is prosecuted by the Old Colony Trust Company, a Massachusetts corporation, as trustee in a mortgage executed by the Omaha Electric Light and Power Company to secure the payment of upwards of \$2,000,000 of bonds. The Electric Company has operated under a franchise contained in an ordinance of the city council passed in 1884, granting the use of the streets for the erection and maintenance of a pole line transmission system for transacting a general electric light business, in which some qualifying conditions were inserted, but no reference made to the term of the franchise. The Company supplied electricity for light, heat and power without protest on the part of the city until 1908, when the city council "elected to terminate" the power and heat service, and passed a resolution, approved by the mayor, directing the city electrician to disconnect "all wires leading from the conduits or poles of the Omaha Electric Light and Power Company, transmitting electricity to private persons or premises, to be used for heat or power."

The city, in taking this course, contended first, that the franchise was limited to the corporate existence of the original company, which corporation expired September 26, 1905; and second, that the franchise by its terms is limited to the distribution of electricity for lighting purposes, and does not include use for power or heat.

13—Protection of the Corporation

The Court cites the main Nebraska decisions, and provisions of the law and the state constitution concerning franchises, and concludes that the present franchise is in perpetuity, subject to the police power of the state in respect to rates and service and mode of conducting the business, and forfeitable for acts of abuse, abandonment, or non-use, but not to be taken away or impaired arbitrarily.

138—Contracts.

The Court holds as to the power granted by the franchise, that since the record showed that the City had acquiesced in, encouraged and directly sanctioned the action of the Electric Company in equipping its plant at great expense for the distribution of current for power and heat, knowing that this was being done under a claim of right under the ordinance of 1884, and since the City had required the Company to pay the City 3 per cent. of the gross earnings of the electric business, including the receipts from heat and power service, and further since the City had itself become and remained a purchaser in substantial quantities of electricity for power, that such conduct constituted practical recognition of the contract, and therefore the Company is entitled to a continuance of the rights conferred by the franchise ordinance, as the same was interpreted in actual practice prior to the resolution of 1908. But that it may not now against the will of the City enlarge or extend its heat or power service, or its transmission system for those purposes.

NEBRASKA**83—Municipal Ownership.**

MINDEN-EDISON LIGHT AND POWER COMPANY V. CITY OF MINDEN et al. Suit to Restrain the City from Constructing a Municipal Lighting Plant. Decision of the NEBRASKA SUPREME COURT, Sustaining the City's Right. June 26, 1913. 142 Northwestern, 673.

The City of Minden (pop. 1,559) held an election and voted to bond the city for \$15,000 to construct an electric lighting system. The Electric Company obtained a temporary injunction, and sought in the present action to have the bonds declared void because the language concerning them in the election notice is vague and indefinite as to their payment; because there is no provision in the law under which they are voted for levying a tax to pay the principal and interest; and the Light and Power Company contends further that its franchise is in effect exclusive, or at any rate that its contract for street lighting will bar the city for 50 years to construct its own system. The Court dismisses all these arguments, says that an exclusive franchise is prohibited in direct terms by the state Constitution, and affirms the city's right to construct and operate a municipal plant.

ALABAMA**38—Taxation.**

KANSAS CITY, MEMPHIS & BIRMINGHAM RAILROAD COMPANY V. STILES. Action by the Railroad Company to Recover Franchise Tax Based on Its Total Capital Stock. Decision of the SUPREME COURT OF ALABAMA, Adjudging the Tax Valid. June 19, 1913. 62 Southern Report, 734.

The Railroad Company, which is a consolidated corporation organized under the laws of Alabama and also under the laws of Mississippi

and Tennessee, was taxed by the State of Alabama upon the basis of its entire capital stock, though the greater part of its mileage is located, and the greater part of its capital employed in other states. The decision dismisses the railroad's plea that the tax is unlawful as being either a burden on interstate commerce, or a tax levied on property without the state, and holds that the tax is valid as being laid only on the corporate franchise of the company, though computed at a certain percentage of its whole capital stock.

REFERENCES

RATES

224—Rate Regulation.

Letter in Behalf of the COMMONWEALTH EDISON COMPANY, to the COMMITTEE ON GAS, OIL AND ELECTRIC LIGHT OF THE CITY COUNCIL, CHICAGO, concerning the Report of the City Electrician and City Comptroller, on the Company's Rates for Supplying Electricity, by ISHAM, LINCOLN AND BEALE, Counsel for the Company, August, 1913. Pamphlet, 63 pages.

This states the position of the Company in regard to the recent investigation of its business by the City, and deals with the various items of valuation, going value, franchise value, and rate of return; and it is stated that though its present fair earnings on a just valuation do not call for any reduction of rates, nevertheless, the Company, following its practice in the past, expects from time to time to make such voluntary reductions as seem reasonable and proper.

An appendix is added, in which is abstracted at length, the principal court and commission decisions on rate regulation, covering the points considered

4—Rate Theory.

RATES, editorial, *Journal of Electricity, Power and Gas*, 2 pages. August 9, 1913, p. 139.

This refutes the old fallacy of uniform charge to all electric consumers which after being repeatedly downed is again being proposed as a means of preventing rate discrimination by electric companies. The benefit of getting the large off-peak consumer in order to distribute further the enormous initial cost of equipment, and the impossibility of getting the large power consumer at a uniform high rate, is mentioned. The statement is made that the question is now being raised whether a railroad, a telephone, or a power company is not more public than private in nature; but that while ultimately electric light and power companies will also be obliged to recognize the public quality of their management as paramount to the private quality, until this time comes, the obligation to stockholders compels the company to make different charges to different classes of consumers.

61—Character of Service.

ELECTRICITY IN JEWELRY MANUFACTURING, illustrated article, *Electrical Review*, 4 pages. August 16, 1913, p. 311.

This states that increased production with the same personnel, tool equipment, floor space and working time, and improved quality of product, due to uniform speed, are the two most important advantages of motor drive for jewelry manufacturing plants. A detailed analysis of operating costs in a typical converted plant is given, and operating data on three installations using motor drive.

INVESTMENT AND RETURN**222—Accounts.**

IMPORTANCE OF UNIFORM ACCOUNTS AND STATISTICS, by HALFORD ERICKSON. 3 pages, *The Gas Age*. August 1, 1913, p. 112.

This discusses the necessity of uniform accounts for utilities in order that such information may be secured concerning the earnings and expenses of the plants, the investment therein, the conditions under which they are operating and other facts of this nature as will assist the managers in their work, disclose to the investors, the conditions of their property and render such aid to the public service commissions, that they may be in position to deal intelligently with the many problems that come before them. The need of basing the classification on sound principles of accounting is urged, and the classifications suggested which should be made under earnings, operating expenses, balancing of accounts, and investment accounts in order to show in detail the cost of the plant—what it owns and owes—and render easy the apportionment of capital charges to various branches, departments and classes of service. The importance of uniform, classified statistics to supplement the accounts is pointed out. There is a full discussion of the importance to the rate-maker of the proper presentation and allocations of the expenses and the statistics in computing cost of service, depreciation and rate of return; and to the owners and management in judging matters of efficiency and economy. The writer urges the separation of expenses into output, capacity, and consumer expenses in addition to the other classifications; uniformity of practice in treating inter-departmental transactions in a municipally owned utility; and careful apportionment in jointly operated utilities.

228—Franchises

THE WISCONSIN INDETERMINATE PERMIT LAW, by JAMES D. MORTIMER, *Aera*, 14 pages. August 1913, p. 7.

This is a study of the provisions of the Wisconsin Public Utility Law creating indeterminate permits, and some facts in the history of utility operations under this type of franchise. The controversies which have arisen between the Commission and the utilities directly involving a settlement of the rights and protection afforded by these permits, are reported and discussed. In the matter of protection of corporations operating under indeterminate permits, from municipal competition the courts have held that the municipality is disabled to act without a certificate of convenience and necessity from the State Commission. Some court decisions have expressly spoken of the indeterminate permit as constituting a "perpetual and exclusive" franchise, subject only to the conditions and limitations of the law, but the common interpretation is that the permit continues practically during the good behavior of the utility, during the compliance of the utility with the provisions of the Public Utility Law, "until such time as the municipality shall exercise its option to purchase as provided in this act, or until it shall be otherwise terminated according to law." An amendment of 1911 summarily changed all franchises granted prior to the effective date of the Public Utility Law to indeterminate permits, instead of leaving the acceptance of these optional with the company as originally provided. The constitutionality of this amendment was questioned, but has been sustained, and the affirmative and dissenting opinions on this point are given. In appendices at the end of the article, the provisions of the statutes relating to indeterminate permits are given in full, and abstracts of the five Wisconsin Supreme Court cases involving these franchises.

313—Prices.

PRICE CHANGES AND THE BUSINESS OUTLOOK, *Engineering News*, 5 pages. August 7, 1913, p. 87.

33—Capitalization.

ARE AMERICAN RAILROADS OVER CAPITALIZED? by ALBA B. JOHNSON. *The Saturday Evening Post*, 11½ pages. August 9, 1913, p. 25.

This is a review of past and present railroad conditions in the United States, with a statistical comparison of their capitalization per mile which shows that this is much lower for American railroads than for those of Germany, England or France and also that the dividends paid on our railroads are a considerably less percentage of their revenues than is the case in other countries. In view of these and other facts, it is stated that the invigoration of railway credit through the protection of railway revenues, is now the greatest need in the development of this country which cannot go forward without the general enlargement of facilities and provisions for safety of railroads in all sections of the country; and that the stiffening of railway credit is the only way of providing the capital for handling our expanding business and should take precedence over further efforts by the regulatory bodies to scale down the returns to the owners and creditors of our railroads.

PUBLIC SERVICE REGULATION**2—Public Service Regulation.**

THE TWO EPOCHS OF RATE REGULATION, by WILLIAM J. NORTON. Read before the Michigan Section Convention, National Electric Light Association, Ottawa Beach, Michigan, August 19, 20, 21, 1913.

This paper discusses the immense difficulties which the many new public service commissions lately established will have to face, and the grave need of care and watchfulness on the part of the commissions against trying to apply theoretical regulation at once.

The assertion is made that public service regulation should be properly divided into two separate epochs (1) the preparatory period of regulation and (2) the final period of regulation, the first an epoch of preliminary regulation, in which the effort of the commission shall be directed to so adjusting its orders and regulations, that ultimately a second epoch may be definitely reached where theoretical regulation may apply without any unfairness or harm either to the public or to the corporation being regulated. The Wisconsin, New York, and Massachusetts Commissions are cited as having recognized the need of this preparatory period of regulation, which may last probaly from fifteen to twenty years. An analysis is given of the helpful work commissions can do by applying the theory of two-epoch regulation to the various problems of the commission. The following are among the recommendations made: In the matter of valuation, the establishment of a joint valuation board, having the confidence of both the commission and the companies, which shall work out the problems of valuation through the careful study of the history of utilities, and make investigation and determination of every element of valuation; in the matter of capitalization, the gradual amortization, during the first epoch, of objectional elements; in the matter of depreciation, a liberal policy, directing that depreciation funds be built up just as fast and just as adequately as the rates will allow; in the matter of rate of return, such careful adjustments as will allow the companies to slowly but gradually accommodate themselves to the stated rate of return (which is a complete reversal of the old financial and executive policies) and ensure the careful avoidance of drastic rulings which injure the financial stability of the company, and make future extensions and developments difficult; in the matter of rates, recognition of the fact that valuations and the rate of return are at best only approximate indications of what an electric rate should be, useful at best as proper guides for total revenues not for specific rates, and that the best results may be obtained by the policy of making rate reductions as often as it is possible, and at those points in the schedule where it would accomplish the most in acquiring new business, or where it would relieve the most urgent stress.

268—Public Service Laws.

PENNSYLVANIA PUBLIC UTILITY LAW, editorial, *Electric Railway Journal*, 1 $\frac{1}{4}$ pages, August 9, 1913, p. 210.

This states that the Pennsylvania Law recently passed (see 3 RATE RESEARCH, 271) is on the whole better than most laws which have been passed in other states during the last ten years. Some good points of the law are, the longer term of office of the State Commissioners—10 years; the provisions concerning the issuance of securities by utilities that in case it is immediately necessary the company may proceed without the official sanction of the commission on condition of the subsequent filing of a "certificate of notification," giving the purposes and a detailed description of the issue, and later accounting for the use of the money arising from the sale; the keeping of uniform accounts and making of reports to the Commission are obligatory on municipal as well as private companies; municipalities must obtain certificates of public convenience and necessity before engaging in the public utility business; a contract between a municipality and a utility is not valid unless approved by the Commission; and an appeal from the Commission's order fixing rates acts as a supersedeas on filing a bond with the Commonwealth to cover damages in case of an adverse decision.

22—General Powers of Commission.

CONFLICT OF PUBLIC SERVICE COMMISSIONS, editorial, *Electric Railway Journal*, August 9, 1913, p. 209.

This states that the United States Supreme Court will probably be called on to settle the question of jurisdiction over railroads and interurban electric roads whose lines are located in two adjoining states, in any matter over which the Interstate Commerce Commission has no authority. This question is brought to a head by the situation created by the Arizona Corporation Commission refusing to authorize a two-year note issue of \$30,000,000 by the Southern Pacific Railroad, which issue was already consented to by the California Railroad Commission. The railroad company has brought suit against the Commissions, and this may prove a test case and result in clearing up the perplexity which has obtained in cases where a road, in attempting to improve its system as a unit, has found itself confronted by several and often conflicting orders in the states containing the unit.

771—Inspection.**GENERAL**

REGULATIONS FOR LINE CONSTRUCTION IN OREGON, editorial, *Journal of Electricity, Power and Gas*, August 9, 1913, p. 138.

This discusses the tentative regulations just issued by the Oregon Railroad Commission, governing overhead and underground construction of telegraph, telephone, signal, trolley and power lines in the state; the likeness of the provisions to the similar requirements in California; the general excellence of the rules; and the commendable spirit shown by the Commission in giving the companies an opportunity to file any protest to this tentative order. The objection is made that to require a six-foot clearance for all voltages between 600 and 15,000 works an unnecessary hardship on many 2,200 volt distributing systems. The recognition of 6,000 volts as an intermediate value would make a four-foot clearance equally safe.

98—Public Relations.

THE PUBLICITY OF A GAS COMPANY, by F. W. STONE, *The Gas Age*, 3 pages, August 1, 1913, p. 127.

This tells the story of an advertising campaign inaugurated to secure for the gas company the same confidence and good feeling enjoyed by other business concerns. Each week, in a prominent place in the newspaper, there was a statement from the gas company covering some phase of the business in which the public would be interested. The reason for every charge, rule, or action, and the working of every department was made as plain as possible. Ten such advertisements are given.

Vol. 3

August 27, 1913

No. 22

RATE RESEARCH



PUBLISHED BY THE
RATE RESEARCH COMMITTEE
OF THE
NATIONAL ELECTRIC LIGHT ASSOCIATION
120 WEST ADAMS STREET - - - CHICAGO

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Rate Research

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CONTENTS	Page
RATES	339
New London, Connecticut	339
COMMISSION DECISIONS	340
Nebraska	340
Idaho	343
Missouri, South Dakota, California, Rhode Island	344
COMMISSION ANNUAL REPORTS	345
Georgia	345
COURT DECISIONS	347
United States Supreme Court	347
Massachusetts	347
New York	348
Indiana	349
REFERENCES	349
Rates	349
Investment and Return	350
Public Service Regulation	351
Municipalities	352

Rate Research

Vol. 3. CHICAGO, AUGUST 27, 1913 No. 22

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES

72— RATE SCHEDULES.

THE NEW LONDON GAS AND ELECTRIC DIVISION OF THE CONNECTICUT POWER COMPANY, has announced a reduction in its electric lighting and power rates, effective July 1, 1913, as follows:

RESIDENCE LIGHTING

Rate—

12 cents per kilowatt-hour.

Prompt Payment Discount—

1 cent per kilowatt-hour for payment within ten days.

Minimum Charge—

\$12 per year per meter, payable \$1 monthly, and adjusted yearly.

COMMERCIAL LIGHTING

Rate—

12 cents per kilowatt-hour for the first 50 hours' use per month of connected load.

8 cents per kilowatt-hour for the excess use.

Prompt Payment Discount—

1 cent per kilowatt-hour for payment within 10 days.

Minimum Charge—

\$3.50 per month per kilowatt of connected load.

POWER

Rate—

Demand Charge—

\$3 per kilowatt of maximum demand per month; plus an

Energy Charge—

2.25 cents per kilowatt-hour.

(Current to be sold at Company's standard secondary voltage.)

Quantity Discounts—

Demands.	Discount.
1 to 20 KW.....	1% for each KW. of demand
20 to 40 KW.....	20% for the first 20 KW., plus .6 of 1% for each additional KW.
40 to 75 KW.....	32% for the first 40 KW., plus .3 of 1% for each additional KW.

EDITORIAL NOTE.—All indented matter is direct quotation.

75 to 150 KW.....	.....42.5% for the first 75 KW., plus .03 of 1% for each additional KW.
150 to 300 KW.....	.....44.75% for the first 150 KW., plus .015 of 1% for each additional KW.
300 to 600 KW.....	.....47% for the first 300 KW., plus .01 of 1% for each additional KW.
600 to 1500 KW.....	.....50% for the first 600 KW., plus .005 of 1% for each additional KW.
Over 1500 KW.....	.....54.5%

Prompt Payment Discount—

10 per cent.

The customer agrees to maintain a power factor on the installation for which service is purchased of 75%. Should the power factor at any time be less than 75%, an additional gross service charge of 5 cents per K.W. per month for each per cent that the power factor is found to be less than 75%, will be charged.

COMMISSION DECISIONS**NEBRASKA****31—Valuation.**

LINCOLN TELEPHONE AND TELEGRAPH CASE. The following paragraphs conclude the rulings handed down by the NEBRASKA STATE RAILWAY COMMISSION in this case, begun in 3 RATE RESEARCH 313.

36—Depreciation

In this, as in practically all of the notable rate hearings, the question of depreciation has been one regarding which much testimony was adduced, and is always the subject of much controversy, not so much as regards the question of whether or not there is depreciation or whether it should or should not be allowed, but as to the rate necessary to protect the company against the loss of its plant. The depreciation of a plant, though it may not be so apparent, is just as real and substantial a charge against revenues as the wages paid to operators or any other employee of the company. For the public to refuse to pay, through addition to the rates, a sufficient allowance to guarantee the company against seeing the plant, which it places at the disposal of the public, gradually fritter away and become lost, is unconscionable and inequitable. No just or fair-minded person any longer expects this. . . .

It is found that the rates of depreciation set out will range in different localities, dependent somewhat upon the class of plant, from 5 per cent. to 7 per cent., and in some few cases even more, but the generally accepted ratio in the larger plants is 6 per cent., and this is an allowance many of the Commissions have agreed and are using in reaching their conclusions in telephone rate cases. In this case the variation between the findings of the various engineers

and the estimated requirement, as set forth by the company, ranges from 6.01 per cent. to 6.54 per cent. on reproduction value. . . .

Many of our Commissions and engineers recognize the theory, which was announced by this Commission several years ago in the Lincoln Traction case, that, except under certain conditions, maintenance and depreciation are practically inseparable and always interdependent. In a plant where current repairs are promptly and carefully made, depreciation will be less than in a plant where maintenance charges are low and current repairs more or less neglected, and also if the line of demarcation is not sharply drawn, many items properly chargeable to depreciation will, in the handling of current repairs, naturally creep into the maintenance accounts.

The Commission therefore is inclined to think that with the adoption of the new system of accounting promulgated by this Commission and the Interstate Commerce Commission, it will develop that there is no necessity for quite so large a charge against maintenance account as has been made in the past, part of the items entering therein being hereafter chargeable to the depreciation account. Pending the actual demonstration by experience, the Commission will allow for depreciation and maintenance combined a charge of 9 per cent. per annum on the reproduction new value as found herein. . . .

411—Apportionment of Expense

The principal reason for added costs in the larger exchange, lies in the fact that as the exchange is extended, the average investment becomes much greater. Consequent upon this the requirements for depreciation, maintenance and returns on investment are increased.

The amount necessary to cover these costs are in excess of 75 per cent. of the gross revenue, leaving less than 25 per cent. for direct operating expenses. This demonstrates clearly that where the increase is needed it is not so much by reason of added operating costs but 75 or 80 per cent. of the increase is because of added burden for investment, maintenance, depreciation and taxes. . . .

34—Rate of Return

No element of rate regulation has caused more discussion or controversy than that of rate of return, and the opinions of the past vary from the statement, that any earnings above mere operating expenses up to 10 per cent., constitute a fair rate of return on fair value. The controversy is endless, and the Commission will not endeavor to give here its full views with regard to proper rate of return. The Commission is not satisfied to agree with some decisions that have come to its notice, to the effect that any earning is not confiscation. An investor has a right to expect not merely that his investment shall remain intact and not be gradually

eaten away by losses or depreciation, but he has also a right, which we think cannot be disputed, to an earning which is a reasonable interest on the investment. We are not prepared to determine upon the rate which shall irrevocably bind the Commission as a fixed percentum that shall in all cases be demanded as of right, because of such decision, but will leave it open to determine in each particular case as to what may be the reasonable earnings to which the corporation is entitled.

It must always be borne in mind that different classes of utilities must earn different rates of return, in order to be able to finance their needs and meet the reasonable demands of the public for extensions and enlargement of plant. This can never be done except at a sacrifice, if the returns allowed by the regulating body are too low to satisfy the investing public. But the rates need not always be the same. That is, for some classes of securities, which are first liens on property, and practically a guarantee that the principal as well as the interest will be faithfully and promptly paid, 5 per cent. may be ample. In others, where there is some slight risk, 6 per cent. would hardly be adequate, and for the stockholder who gives a first lien on his property through bonds and takes all the chances of the various vicissitudes through which a new corporation is often obliged to pass before reaching a steady dividend paying period, this Commission is of the opinion that 6 per cent. ought to be the minimum at which rate a corporation can hope to invite subscribers to buy stock with a fair expectation of having its hopes realized and being able to finance its needs. Nor do we mean to be understood in this as saying that 5 per cent. is all that will be allowed in such cases. There are reasons why, even in the same class of corporations, there will be fluctuations and differences dependent largely upon the conditions, the location, the class of people served, efficiency of management, and other considerations too numerous to mention, all of which have more or less bearing on the net earnings of any public utilities.

In at least five of the notable telephone cases brought before Eastern Commissions in the past two years, 8 per cent. has been designated as a reasonable rate of return on the value found by the Commissions, and these decisions are entitled to the respect of the entire country; so that if corporations of this kind in the East are allowed to earn 8 per cent., where money, as a rule, brings less interest than it does out West, and where capital is more easily secured at lower rates than in this section of the country, this Commission can hardly demand that the investing public shall be held at lower rates, or expected to serve the public with less compensation. In New Jersey, New York, Maryland, and other states, Commissions have agreed in cases of this kind that the earning of 8 per cent. on the value of the property used in serving the public is not excessive. The Commission of Canada lately, in an important case, determined that rates would not be

disturbed or lowered, notwithstanding that the company was earning 8.28 per cent.

But, as was well said by the NEW YORK PUBLIC SERVICE COMMISSION for the Second District in a very recent decision: [See Buffalo General Electric Rate Case, 3 RATE RESEARCH, 139].

"The truth is, no one can tell what return a given rate will produce either in the aggregate or as a percentage upon some other sum. The returns can only be ascertained by experience. All that can be determined, in such a case as this, is that the rate is not confiscatory; that is to say, it will return at least 6 per cent. upon the ascertained fair value of the property used in public service. There is no such thing as keeping the return, however, at 6 per cent. The conditions will vary from year to year. Operating expenses will vary; gross earnings will vary; and in a town which is not thoroughly developed, as Buffalo is not, a rate should be so fixed as to increase the return to the company by increasing its revenues above the limit fixed without a proportional increase in expenses."

In like manner this Commission does not care at this time to bind itself to either 6, or 7, or 8 per cent., and promulgate any of them as a fixed rate of return, which will be fair in all cases. Nor for the purposes of this case, is it necessary to reach a final decision that 8 per cent. is necessary, or right. It does, however, feel that to calculate the rate of return at 7 per cent. on the present depreciated value of the plant, will not be unfair to the public. . . . It is evident that . . . to demand of the company that they shall continue to serve the public at the present rates, without relief, would, in a very short time, inevitably waste away the stockholders' equities and force the company into bankruptcy. There can be no doubt but that relief is needed, nor can there be much question as to the amount.

IDAHO

713—Filing of Schedules.

The PUBLIC UTILITIES COMMISSION OF THE STATE OF IDAHO, has issued an order embodying rules and regulations for filing of rate schedules of all the public utilities in the state other than common carriers. The order is of date June 10, 1913, and the essential points are as follows:

It is ordered, That every public utility in the State of Idaho (other than a common carrier), as defined by Section 2 (bb) of the Public Utilities Act of this State, be and the same is hereby required to file within sixty days from the date hereof, with this Commission, schedules showing all rates, tolls, rentals, charges and classifications, collected or enforced or to be collected or enforced by it, together with all rules, regulations, contracts, privileges and facilities which in any manner affect or relate to such rates, tolls, rentals, classifica-

tions or service.

The schedule shall be printed or typewritten on plain white paper, and as nearly as practicable, shall be on paper eight and one-half inches wide by eleven inches in length, and in case it is typewritten shall be on one side of the paper only . . . in plain and easily read type, with appropriate heading, such heading to be in large and bold letters or type, so that the same can be easily distinguished from the body of the matter written thereunder. . . .

If the public utility has any joint rate, tariff, fare, toll, contract or charge with any other public utility, such schedule shall show the same and shall specify in what the same consists, and the proportion thereof received by each, and shall give the name of such public utility. . . .

The schedule shall set forth the name of the public utility and its location, the date when the same is issued, the date when it becomes effective, and whether or not the same cancels or supersedes all preceding schedules, and shall be signed by the owner or operator of the public utility, filing the same, or by some officer or managing agent of such owner or operator, as the case may be.

MISSOURI, SOUTH DAKOTA, CALIFORNIA, RHODE ISLAND

65—Discrimination.

The provisions of the public utility laws of the different states, and the practice of the various State Commissions in the matter of allowing utilities to exchange free service with other utilities are as yet divergent, as may be seen from some recent decisions in telephone and railroad cases.

THE MISSOURI PUBLIC SERVICE COMMISSION, citing section 87 of the Missouri Law, issued a Conference Ruling on May 21, 1913,

that a telephone corporation cannot furnish free of charge a telephone to a railroad corporation to be installed for its use or the public free of charge at a railroad station in this State.

The SOUTH DAKOTA BOARD OF RAILROAD COMMISSIONERS has published the Opinion of the Counsel to the Board that the various rural telephone lines may not obtain free service from the local exchanges in towns, by granting similar free service over their own lines, but that payments for such service must be made in money or cash, and at the rates on file with the Commission, not to exceed twenty-five cents per month for each instrument.

The CALIFORNIA RAILROAD COMMISSION issued a decision April 11, 1913, in the case of the application of the California Western Railroad and Navigation Company to refund the difference between its schedule rates on file with the Commission, and certain lower charges specified in a contract with a lumber company in consideration of certain right of way privileges granted to the railroad by the lumber

company. The railroad had collected its scheduled rates in accordance with law, and sought to refund the excess over the contract rates. The Commission dismissed the petition, but ruled that the railroad will be permitted to pay the lumber company a reasonable sum, whether it be an amount equal to the difference in question, or a less amount, for the right of way, on the filing by the railroad company with the Commission of a verified statement of the true value of the privileges granted by the lumber company.

The RHODE ISLAND PUBLIC UTILITIES COMMISSION issued an order March 19, 1913, permitting the Providence Telephone Company to grant special rates to persons who had given the company rights to locate poles or wires, or other privileges, prior to the passage of the Public Utilities Act; and permitting it to establish free exchange of service with a street railway, a ferry, and two railroad companies.

The Rhode Island Commission also, by an order of March 13, 1913, authorized the New York, New Haven and Hartford Railroad Company

to furnish passenger transportation to the publishers of newspapers and magazines and to their employes, in return for advertising in such newspapers and magazines at full rates.

252— COMMISSION ANNUAL REPORTS

GEORGIA

FORTIETH REPORT OF THE RAILROAD COMMISSION OF GEORGIA, for the year ending December 31, 1912. 341 pages.

The greater part of the work of this Commission is concerned with the railroads, though it has had full jurisdiction over electric light and power rates since 1907. The present volume gives summaries of the financial operations of the corporations subject to the jurisdiction of the Commission, including those of the forty-eight street railroads, gas and electric light and power companies, from their reports to the Commission; the provisions of the State Constitution prescribing regulation of railroads by the legislature; the text of the original law, passed in 1879, creating the Railroad Commission, and the various amendments to date, including the Act of 1907 extending jurisdiction over electric light and power companies, p. 45, sec. 5; all the general rules, circulars and orders issued by the Commission, and opinions of its counsel.

221.1—Issue of Stocks and Bonds.

Six decisions of applications for stock and bond issues by electric light and power companies are reported, pp. 307-313, one such authorization being given to the Americus Power Company to construct a new electric plant to operate in Americus (pop. 8,063) in competition with the Americus Gas and Electric Company, which has supplied this city since 1892. This is granted on the following opinion of the Com-

mission Counsel interpreting the phrase "and then only when necessary" in the Act of 1907, in regard to the issue of stock, p. 253:

132—Protection from Competition.

Bearing in mind, that the State has not yet adopted the policy of benevolent monopoly, but, on the contrary, that the whole public policy of the State favors competition, I am of the opinion that the Commission can not decline to authorize the issuing of the stock of a new company simply because there is no public necessity for the existence of such new company.

81—Municipal Regulation.

Two opinions of interest to electric companies are, first, the request of the City of LaGrange (pop. 5,587) for information as to authority of a municipality to prescribe electric rates in granting a franchise, p. 277. The decision is in short as follows:

The Georgia Power Company has applied to the Mayor and Council of the city of LaGrange for a franchise for the purpose of supplying that city and its citizens with electric light and power. The city insists that a scale of maximum rates be made a part of the consideration for the grant to this company of the franchise, and by which this company is to be bound. This company refuses to accept a franchise upon this condition. . . .

"So, in my opinion, a contract between the city of LaGrange and the Georgia Power Company, fixing rates for light and power, would have to yield to the power and authority of the Railroad Commission to fix reasonable and just rates for such services. It is further my opinion, that such a contract would be void in so far as it undertook to fix such rates, for lack of power and authority in the city of LaGrange to make the same.

"It is further my opinion, that the power and authority to fix just and reasonable rates for light and power, furnished by this company in the city of LaGrange, are vested exclusively in the Railroad Commission of Georgia.

"It is further my opinion, that the city of LaGrange would have to apply to the Railroad Commission for redress against unjust and unreasonable charges made by this company for lights and power."

58—Terms and Conditions.

In the other case, the provision in the contract of the Atlantic Gas Light Company, that 48 hours' notice must be given the company of intention to discontinue the use of the meter, is adjudged a just and reasonable requirement. A customer using a prepayment meter, had changed her residence to another part of the City, and when the Company's agent arrived at her former residence to take out the meter he found the house door wide open and the meter broken into and robbed. The decision holds that as the customer had failed to give the 48 hours' notice specified in the contract, she was responsible

to the Company for the amount due according to the reading of the meter, and unless payment of this is made the Company may cut off its service from her present residence. p. 279.

COURT DECISIONS

UNITED STATES SUPREME COURT

22—General Powers of Commission.

OMAHA AND COUNCIL BLUFFS STREET RAILWAY COMPANY, AND OMAHA AND COUNCIL BLUFFS RAILWAY AND BRIDGE COMPANY, Appellants, v. INTERSTATE COMMERCE COMMISSION, AND UNITED STATES. Suit to Enjoin Enforcement of Commission's Order Reducing Street Railway Rates. Decision of UNITED STATES SUPREME COURT Decreeing Permanent Injunction. June 9, 1913. 33 Sup. Ct. 890.

The rates reduced by the order appealed from were those between Council Bluffs, Iowa, and Omaha, Nebraska. The question settled in this decision is that the Interstate Commerce Act, 1887, to regulate commerce, applies to common carriers only, and does not apply to street railways, even when carrying interstate traffic, and therefore the Interstate Commerce Commission has no jurisdiction over the railways in this case.

MASSACHUSETTS

14—Relations of Corporations with Each Other.

ATTORNEY GENERAL V. HAVERHILL GAS LIGHT COMPANY. Information against the Company to Prevent the Sale of Its Physical Property. Decision of the MASSACHUSETTS SUPREME JUDICIAL COURT, Prohibiting the Sale. May 27, 1913. 101 Northeastern, 1061.

The following paragraphs summarize this case:

Without narrating all the facts set out in the record, it is enough to say that Stone and Webster acquired all the stock and bonds of the [Haverhill Gaslight Company] and, for the purpose of avoiding and adjusting certain financial and legal difficulties existing between the company, the city of Haverhill and the board of gas and electric light commissioners, organized a new corporation of which they held all the stock and, after making an arrangement approved by the city officers of Haverhill as to the price of gas and receiving what purported to be street locations granted to the new corporation, proposed to transfer all the tangible physical property of the [company] to the new corporation. . . .

Without legislative authority a gas company cannot sell its property or franchise to another party, in such a way as to take away its power to perform its public duties. . . .

On basic principles, it cannot sell or mortgage its property so as to impair in any substantial degree its ability to continue to perform its public service, without legislative consent. . . .

NEW YORK**138—Contracts.**

INDEPENDENT OWNERS' GARAGE Co. v. HIRSCH. Suit to Recover Fee Paid to "Electrical Consumers' Adjustment Company" on Guarantee to Save Consumer 10 per cent on Electrical Bills. Decision of the NEW YORK SUPREME COURT, APPELLATE TERM, FIRST DEPARTMENT, that No Saving Having Been Effectuated, Fee Must be Refunded. June 18, 1913. 142 New York Supplement 346.

The contract in question is given as follows:

"We request you to make such inspection, as may be necessary, of our electric installation, for the purpose of determining correctness of charges for current, and agree to pay your inspector \$75 on presenting certificate of inspection. You guarantee a saving of at least 10 per cent or agree to refund the fee paid. It is further understood and agreed that upon said payment, without extra charge, you will obtain the cheapest contract for our electric current, also test our meters and examine motors whenever necessary, and audit our bills for one year from date, as they are presented to you monthly; also audit all bills for past five months and guarantee to obtain rebates on all overcharged bills to date, before the termination of this contract, or to refund the fee paid herein."

782.5—Lamp Efficiency.

The consumer showed that no saving had been secured through the services of the "Adjustment" company, and the defense of the latter was that a reduction in the bills would have been caused by following its recommendation to the purchaser of current to change his carbon lamps to tungsten or tantalum. This is pronounced by the Court to be without merit, as the contract did not call for any change of installation on the part of the Consumer, who did not need a \$75 inspection to teach him the fact now known to any one at all familiar with electric lights, that tungsten lamps cost less for current consumption than carbons; and the customer testified that he knew this, and only refrained from making the change because the tungsten lamps in his opinion broke too easily.

138—Contracts.

The Court concluded:

A single reading of the contract demonstrates clearly that the reduction guaranteed by the defendant was to arise from keeping a closer check upon the bills of the Edison Company, by testing the meters, examining motors, obtaining a better contract, and auditing bills. The contract says clearly that the inspection is to be "for the purpose of determining correctness of charges for current," and any recommendations made by the defendant to the plaintiff as to changing his lights and installing a new system are immaterial. The contract guarantees a saving of at least 10 per cent upon lighting bills or money refunded. It is proved that no saving of any kind was made, and the excuse offered is without merit.

INDIANA

38—Taxation.

INDIANA UNION TRACTION Co. et al. v. GOUGH et al. Appeal by the Traction Company against Taxation of Its Tracks and Right of Way to Pay for Construction of Sewer. Decision of the Appellate Court of Indiana Adjudging such Taxation Illegal. June 26, 1913. 102 Northeastern Reporter, 453.

The City of Muncie, Indiana, assessed the Indiana Union Traction Company for the construction of a sewer in a district traversed by a portion of the company's tracks. This decision is that such taxation is not legal.

REFERENCES

RATES

62—Factors Affecting Rates.

POWER, LOAD AND DIVERSITY FACTORS—THEIR RELATION TO NEW BUSINESS, AND STATION INCOME. By A. G. RAKESTRAW. *Electrical Engineering*, 2 pages, August, 1913, p. 364.

This article gives a succinct explanation of the power, load, and diversity factors, and outlines methods by which they may be kept as high as possible. In order to increase the power factor, central station managers should avoid highly inductive loads, and cooperate with the manufacturers in the introduction of apparatus having high power factor. To increase the load factor, the "valley" should be filled up by getting business with a good load factor, such as long-burning and all-night stores, steady factory loads, industrial heating apparatus (glue pots, flat irons for tailors and laundries), 24-hour pumping loads, refrigerating machinery, charging electric trucks, etc.; and the "peak" reduced by serving some lighting customers on a flat-rate instead of a meter rate, and making a flat-rate proposition based on the use of tungsten lamps to customers using signs with carbon lamps, etc. A good diversity factor should be built up by getting off-peak business, and thus scattering the periods of maximum demand as widely as possible.

4—Rate Theory.

RATES AND RATE MAKING, by JOHN F. DRUAR, *Journal of the Association of Engineering Societies*, 12½ pages. May, 1913, p. 221.

This discusses the problem of fixing electric light and power rates, the first step in which is stated to be a complete valuation of the property, the depreciated reproduction cost now being pronounced the most practicable and satisfactory method, as against original cost investigations; detailed instructions are given for making inventories and appraisals of all the physical items, description of the valuation sheets to be compiled, and maps and plans to be made. To this value should be added a percentage, variously estimated by experts, engineers and courts as from 11 to 43 per cent, for intangible value; and lastly a proper amount deducted for depreciation, obsolescence and inadequacy. Having thus determined the actual amount on which there should be allowed an adequate return, rates for different classes of service should be fixed which will yield a total proper revenue, based on the cost of furnishing the different classes of service, due weight being given to the demand factor, consumer expenses limited hours use, and diversity factor. It is suggested that it would be of great

benefit if the various commissions should make a systematic effort to gather all such data as effect the cost of different classes of service, by making exhaustive tests, time charts, etc., and thus rendering available the needed information for determining the peak load responsibility, and the diversity factor. There is no mention of the value of service theory of rate making, or those rates limited by the ability of large consumers to supply themselves, and the consequent placing of such rates on a strictly competitive basis.

45—Value of Service Theory.

VALUE OF SERVICE, editorial, *Journal of Electricity, Power and Gas*, 1½ page, August 16, 1913, p. 159.

This states that the value of service must be given due weight in determining rates, as the law of supply and demand can be no more ignored in the electricity business than in any other. The analogy is used of a butcher paying eight dollars a hundred pounds for a beef, and retailing his products, as for instance porterhouse steak and soup meat, not at the average price plus the proper proportion of his operating and overhead expenses, but strictly in accordance with their respective values to his customers, which is greater for steak and less for soup meat. Other familiar instances might be cited—the actual expense of sending a night message by telegraph is higher than that for a day message; it costs more to construct an upper than a lower berth in a Pullman car; yet the service is of less value and so the rate is lower. Off-peak current may be considered as a by-product which would be wasted if not sold at a lower price than that charged for lighting service. The statement is made that the ideal rate—the rate which will secure the best service at the least cost—is far more likely to be attained by a policy of co-operative regulation, a method which gives an incentive to good management, than one of restrictive regulation which stirs antagonism between the public and the corporation, and places the manager who makes his profits by efficiency and economy on the same level with the man who tries to accomplish this result by extortionate charges.

INVESTMENT AND RETURN

111—Incorporation.

THE EVIL OF SPECIAL PRIVILEGE, by J. NEWTON BAKER. *Yale Law Journal*, 15 pages, Jan., 1913, p. 220.

This reviews the origin, development and present extent and status of special privileges granted to corporations by the different states. The various state legislatures have aimed at passing liberal laws in the matter of granting charters, with a view to inducing capital to organize in such states which would then receive the incorporation and income taxes. This has resulted in much vicious legislation, particularly that permitting the corporation to operate in any other state than that granting the charter of unlimited powers, thus carefully guarding the welfare of the residents of this state while allowing the corporation free scope in exploiting the citizens of other states, and enabling it to evade or violate the laws. A summary is given of the provisions in the various states on the main questions of incorporation, showing the great inconsistencies in legislative practice, and the many evils which have been permitted. It is stated that all the monopoly cases decided by the Supreme Court had their origin in States granting unlimited powers selfishly, and for money gain to the State; and that conservative business men are awake to the danger of impatience among the public for a more equal condition in business affairs, and no doubt the better class of corporations would welcome some prudent national regulation.

314—Overhead Charges.

SHOULD DEPRECIATION APPLY? TREATMENT AND ALLOCATION OF THE ITEM FOR GENERAL EXPENDITURES AND CONTINGENCIES, by E. C. HURD. Read at the CONFERENCE ON VALUATION, Des Moines, June 6, 1913, *Public Service Regulation*, 1½ pages, August, 1913, p. 401.

This outlines the practice of the Nebraska Commission in the matter of apply-

ing depreciation to the various sub-items under the main account of General Expenditures. The writer states that thus far in Nebraska the treatment has usually been to carry the account of General Expenditures into the present value column at full worth, and points out proper exceptions from depreciation deductions. With regard to the first sub-item discussed—"expenses of organization, administration, legal expenses not otherwise entered, and all costs incident to obtaining public rights"—the statement is made that while these items are often lessened in worth, especially when appraisal is hastily done, they should bear little if any lessening. It is stated that it seems a juggling of reason to even suggest that such an item as the promotion and establishment of the business should be depreciated.

In regard to the other sub-items—(1) stationery and printing expenses, embracing stock and bond certificates, also postage, telegraph, telephone, etc., not subject to accurate allocation to the related items, (2) premiums paid for insurance on property, (3) taxes paid during construction, not special in nature, (4) interest during construction, and (5) other expenditures and contingencies,—the writer does not allow the propriety of lessening any except the last. He suggests further refinement of practice in regard to these matters, and careful avoidance of following hurried practice and precedent.

314—Overhead Charges.

RIGHT OF WAY MULTIPLES IN CALIFORNIA, by WALTER MELVIN WELLS. *Engineering and Contracting*, 4 pages, August 13, 1913, p. 189.

This is an account by the right of way expert for the engineering department of the Railroad Commission of California, of the right of way valuation since the passage of the Public Utilities Act. The period covered by the investigation includes principally the last seven years, during which there have been built 980 miles of railroad affording types of practically every condition affecting the value of rights of way. A detailed discussion is given of general methods of acquiring right of way, of the difficulty of cost analysis, of the various classifications made by the engineers to segregate lands into classes of different damage, and the general rules followed, and the difficulties met with, in determining market values.

36—Depreciation.

DEPRECIATION: ESTIMATED AND ACTUAL, by ALEX. C. HUMPHREYS, read at the 50th Anniversary of the Institution of Gas Engineers, Great Britain. *Public Service Regulation*, 6½ pages, August, 1913, p. 430.

This paper read by Mr. Humphreys, as the representative of the American Gas Institute, discusses the confusion existing in America with regard to handling depreciation, the frequent gross errors made by the courts and commissions, because of their necessarily limited practical knowledge; and argues for estimated depreciation charged on the sinking-fund basis, and then no deduction from appraised value for depreciation accrued on effective plant. Detailed answers are given to every objection which has been suggested to this solution of the problem of depreciation.

39—General Investment and Return Information.

PENDING BANKING LEGISLATION, Pamphlet published by the National City Bank of New York, 1913. 77 pages.

This contains a discussion and analysis of the provisions of the proposed new banking bill introduced in the Senate June 26, 1913, and is in the form of letters to the Banking Currency Committees from bank officers. The text of the bill is included.

PUBLIC SERVICE REGULATION

268—Public Service Laws.

NEW MAINE PUBLIC UTILITIES LAW. COMMISSION WITH POWER OVER ALL UTILITIES SUPERSEDES OLD RAILROAD COMMISSION, *Public Service Regulation*, 2 pages, August, 1913, p. 425.

This is a summary of the provisions of the new Maine Public Utilities Commission Law, briefly abstracted in 3 RATE RESEARCH 125, and further referred to in 3 RATE RESEARCH 271 and 304. The law is not yet in effect because of referendum proceedings.

268—Public Service Laws.

THE NEW OHIO COMMISSION ACT, *Public Service Regulation*, 2 pages, August, 1913, p. 409.

This is a brief summary of the main features of the new act creating the Public Utilities Commission of Ohio, which succeeds the Public Service Commission. The sections on valuation, and accounting of excess charges under rate case appeal, are quoted in full.

211.9—Removal of Commissioners.

VERMONT COMMISSION REORGANIZATION, *Public Service Regulation*, $\frac{1}{8}$ page, August, 1913, p. 456.

This recounts the reorganization by the Governor of Vermont of the Public Service Commission, due to its failure to report with regard to complaints against the service and rates of the New England Telephone and Telegraph Co., and allied organizations, which the Governor brought to its attention two months ago. Some time after this notification the Governor appointed a special commission to investigate the telephone situation throughout the state. He has now removed the chairman of the regular commission and requested the resignation of another member, the third having recently resigned. Following the removal of Chairman Watson, Mr. Robert C. Bacon of Battleboro has been appointed chairman.

MUNICIPALITIES

82—State Regulation of Municipal Utilities.

ON EXEMPTING "MUNICIPALS" FROM SUPERVISION, editorial, *Stone and Webster Public Service Journal*, $2\frac{1}{2}$ pages, August, 1913, p. 86. This argues that the exempting of municipal plants from state regulation, as has been done by the Illinois Law, is entirely illogical. An ill-managed, ineffective municipal plant is no more desirable than a similar private plant; and a municipally conducted public utility is not above criticism by virtue of the fact that it is municipally conducted. While at first glance the investors in an ill-managed municipal plant seem to be better protected than in an ill-managed private plant, yet all over the country are investors who have suffered from repudiation of municipal obligations. When however an unsuccessful municipal plant is scrupulous in paying back the money it has borrowed, the loss must be borne by the tax-payers, which is unsound economically and ethically though the sum so taken from each tax payer may be small; and state regulation should be advocated as the best means of preventing wasteful and inefficient operation of the business, and of securing the advantages resulting from the two constructive principles—publicity and standardizing of accounting.

84—Municipal Ownership.

PRIVATE OPERATION UNDER MUNICIPAL OWNERSHIP, editorial, *Journal of Electricity, Power and Gas*, $\frac{1}{2}$ page, August 16, 1913, p. 158.

This states that while the radical element of the population think that regulation is not powerful enough to correct the abuses of private ownership and operation of public utilities, and are demanding public ownership; on the other hand, the conservative element are claiming that regulation is being carried too far, and will result in killing initiative and enterprise by destroying the motive of private gain, and that from this point of view government ownership threatens us as a distinct evil. The suggestion is here made of private operation of publicly owned utilities, as the moderate alternative instead of such a violent change of policy as proceeding from private ownership, to the extreme of public ownership.

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CONTENTS		Page
RATES		355
Famous Rate Papers—No. 3		355
COURT DECISIONS		363
New York		363
Minnesota		363
Nebraska		364
PUBLIC SERVICE REGULATION		365
Massachusetts		365
REFERENCES		366
Rates		366
Investment and Return		367
Public Service Regulation		368

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Vol. 3.

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For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES

FAMOUS RATE PAPERS—No. 3

EQUITABLE, UNIFORM AND COMPETITIVE RATES

By HENRY L. DOHERTY. Read before the National Electric Light Association, Chicago, Ill., May, 1900. *Proceedings of the Twenty-Third Convention of the National Electric Light Association*, pp. 289-343. Begun in 3 RATE RESEARCH 291.

51—Forms of Rates

The main distinctive systems are as follows:

First—Flat rates.

Second—Uniform meter rates.

Third—Meter rates differing on quantity of consumption.

Fourth—Meter rates with a minimum guarantee.

Fifth—Meter rates different on amount of time maximum capacity of installation is used.

Example: New York system.

Sixth—Meter rates varied by the amount of time maximum demand is used.

Example: Wright demand system.

Seventh—Meter rates varying according to time of day at which current is used.

Example: General Electric Company two-rate meter.

The first four of these systems do not, I think, have a single prominent advocate. The New York system is only mildly advocated by the users, and they admit that it is inequitable. The two latter systems are advocated by some of the most prominent men in the profession, but their most sincere advocates are those interested in the patents on the appliances which their use demands. I say this without any wish to cast reflection upon the advocates of these systems. If any of us think a thing is good enough to buy, we should certainly think it good enough to advocate, and we should be entirely justified in doing so; but when we, as central station men, consider any of the problems in our business, we naturally feel that a financial interest in any one system is apt to warp the judgment of the one so interested.

511—

Objections

FLAT RATES

First—They are not suited to all classes of consumers.

EDITORIAL NOTE.—All indented matter is direct quotation.

Example A—The long-hour consumer pays less than cost.

Example B—The short-hour consumer cannot patronize a station of this method of charging, as the cost is apt to exceed that of other means of lighting.

Example C—The cost to the consumer with a big installation and a small maximum demand is prohibitive.

Second—Rigid inspection is required.

Example A—Fraud is possible by increasing the number of lights, by increasing wattage of the lamps used, and by the theft of current for other uses.

Third—The installation is curtailed.

Arguments in Favor

First—If the rate is high enough, no loss can occur to the station except by fraud.

Second—The system permits of simple office records, and offers little opportunity for disputes between company and consumer.

Third—The income is constant, and can be safely anticipated.

Fourth—The fixed charges of the plant are insured.

Fifth—They require no investment for meters.

Sixth—They permit of accurate calculations of the distributing system.

Seventh—Their legality is not apt to be questioned.

513—Straight Line Meter Rate

UNIFORM METER RATES

Objections

First—They are not suited to all consumers.

Example A—The short-hour consumer very probably does not pay the cost he occasions.

Example B—The long-hour consumer can often procure other service more cheaply.

Second—The rapidity with which bills increase in the fall gives rise to dissatisfaction among consumers, which is a menace to the safety of central-station investments.

Third—They are the greatest encouragement to the installation of isolated plants, owing to the fact that the long-hour consumer can manufacture his own current the most cheaply, and it is from this class of consumers that the maximum profit is demanded by this system.

Fourth—As the central station must carry some consumers at a loss, they cannot sell to profitable consumers at a price permitting competition with isolated plants and other means of obtaining light.

Fifth—They encourage heavy peaks and discourage liberal use of current for lighting and other purposes.

Sixth—They require constant arbitrary adjustment of rates.

The second reason given is, I think, of more importance than is generally recognized.

I append chart, showing the number of burning hours in each month in the year, and a careful study of this tabulation shows a remarkable increase in light bills in approaching the season of least natural light:

TABLE SHOWING NUMBER OF HOURS ARTIFICIAL LIGHT IS NEEDED
IN EACH MONTH OF THE YEAR

Evening from	July	August	September	October	November	December	January	February	March	April	May	June	Total
Dusk to 6 o'clock.....			2	33	62	80	65	33	4				279
Dusk to 7 o'clock.....		14	22	62	92	111	96	61	31	4			493
Dusk to 8 o'clock.....		40	52	93	122	142	127	89	62	28	4		759
Dusk to 9 o'clock.....	13	71	82	124	152	173	158	117	93	58	29	8	1,078
Dusk to 10 o'clock.....	44	102	112	155	182	204	189	145	124	88	60	38	1,443
Dusk to 11 o'clock.....	75	133	142	186	212	235	220	173	155	118	91	68	1,808
Dusk to 12 o'clock.....	116	164	172	217	242	266	251	201	186	148	122	98	2,183
All night.....	217	307	345	421	473	527	512	411	382	295	242	195	4,327
Morning from													
4 o'clock to dawn.....		16	48	80	110	137	137	93	71	28	2		722
5 o'clock to dawn.....			18	49	80	106	106	70	40	3			472
6 o'clock to dawn.....				18	50	75	75	42	9				269
7 o'clock to dawn.....					20	44	44	14					122

Arguments in Favor

First—Next to flat rates they require the least investment for measuring apparatus, and a more simple system of office records than the two-rate system.

Second—Less attention is required than for any of the two-rate systems.

Third—The legality of this system is not apt to be questioned.

513.9—Step Meter Rate**METER RATES BASED ON QUANTITY OF CONSUMPTION****Objections**

First—They do not properly discriminate between customers of unequal worth.

Second—A lesser consumption often costs more than a slightly greater consumption.

Third—Their legality is questionable.

Fourth—In addition to these objections, they have all the objections of the uniform meter rate system, except perhaps in a slighter degree.

Fifth—They are generally based on nothing accurate, and represent only the whim of the maker.

Arguments in Favor

First—They require less frequent arbitrary reductions in rate than the uniform meter rate system.

Second—Less attention is required than for any of the two-rate systems.

54—Minimum Charge**METER RATES WITH A MINIMUM CHARGE.****Objections**

First—The minimum charge is generally based on illegal grounds, and does not represent minimum cost to station for "readiness to serve."

Second—They do not properly discriminate between consumers of unequal worth.

Arguments in Favor

First—The company is partially or wholly insured against loss on short-hour consumers.

Second—Insurance against loss permits them to sell to their profitable consumers at a more equitable rate.

514—Demand Basis

METER RATES BASED ON QUANTITY OF TIME MAXIMUM CAPACITY OF INSTALLATION IS USED

This is what I term the New York system, and is one where the consumer pays at a high rate for the first one, two or three hours' use of his total capacity, all additional current being given him at a much lower rate.

Objections

First—They are not suited to all classes of consumers.

Example A—The short-hour consumer pays less than the cost of service.

Example B—They unjustly discriminate against the consumer with a large installation and a small demand.

Example C—The short-hour consumers pay the same rate per kilowatt-hour until they reach a certain consumption, and yet it is axiomatic that the consumer that uses current for nearly all of the required time is much more valuable than the consumer that uses current for only a small portion of the time.

Second—Frequent and rigid inspection is required.

Third—Fraud is encouraged.

Fourth—A liberal installation is discouraged.

Fifth—The necessity for arbitrary reductions in rates is not entirely eliminated.

Sixth—The legality is questionable.

Arguments in Favor

First—They encourage longer-hour consumption of the long-hour consumers.

Second—They require a less investment for measuring apparatus than any other two-rate system.

Third—Less attention is required than for the two-rate or Wright demand system.

514.3—Wright Demand Rate

METER RATES VARIED BY TOTAL TIME MAXIMUM DEMAND IS USED

Or what is generally known as Wright demand system.

Objections

First—It is not suited to all classes of consumers.

Example A—Short-hour consumers do not pay full cost of service.

Example B—Long-hour consumers must be made to pay more than cost of service and proportional amount of profit to compensate for the loss on short-hour consumers.

Second—A liberal installation is apt to be discouraged.

Third—Liberal consumption is also apt to be discouraged for the sake of keeping down maximum demand.

Fourth—Consumption is curtailed to lower demand registrations at seasons when peak is not undesirable.

Fifth—This system is apt to occasion the greatest possible fluctuation of peaks for different months in the year, while a uniform peak is desirable.

Sixth—The charge bears no exact relationship to the cost.

Seventh—Errors in reading cannot be rectified.

Eighth—Accuracy of readings cannot be demonstrated.

Ninth—The equipment is expensive.

Tenth—It is the most complicated of all two-rate systems and is the least apt to be fully understood by the consumer, and, therefore, not apt to inspire the consumer with confidence.

Eleventh—Cost of inspection is increased.

Twelfth—It is possible for the company to be defrauded by collusion between the inspector and the consumer.

Thirteenth—It does not eliminate the necessity for arbitrary reduction in rates.

Fourteenth—Its legality is questionable.

Arguments in Favor

First—In general the charge to the consumer more closely approaches the cost he occasions than any of the other systems enumerated.

Second—It permits concessions to valuable consumers with some degree of accuracy.

626—Seasonal Factor

METER RATES VARYING ACCORDING TO TIME OF DAY AT WHICH CURRENT IS USED

Example—General Electric Company's two-rate meter.

Objections

First—It is not suited to all consumers.

Example A—A short-hour consumer does not pay as much as the service costs.

Example B—It discourages the use of light at a time when such use is desirable.

Second—It is apt to inspire but little confidence in the consumer.

Third—It is expensive to buy and to maintain.

Fourth—It charges the most for current at a time when the cost is least.

Fifth—It does not properly discriminate between short-hour and long-hour consumption.

Sixth—It requires frequent settings for different periods of the year.

Seventh—Its legality is questionable.

Arguments in Favor

First—It encourages consumption at some of the desirable hours.

Second—Errors in reading can be rectified and their accuracy demonstrated to the consumer.

4—Rate Theory

None of these systems will show any exact relationship between the cost to the central station and the charge to the consumer. Charging on basis of maximum capacity installed is so inequitable, that I hardly feel called upon to defend my objections to it.

The Wright demand system has certainly proved a step in the right direction, but the fact that of even its warmest advocates no two agree exactly as to how it should be used, seems almost conclusive evidence that it is not by any means perfect.

The two-rate meter is also an important change from former methods, but it is almost ridiculous to sell current at a lesser price when it costs us most and at a greater price when it costs us least. Assuming that commercial expediency warrants this peculiar condition, there are other and more serious objections which limit its use to special cases.

During the past two years I have made a careful physical and financial examination of twelve stations, in cities varying in size from 12,000 to 250,000 population; during the same period I have made a similar but less thorough examination of eight central stations, in cities varying in size from 4,000 to 600,000. In every case it seemed to me that a good system of rates was more badly needed than anything else. None of the stations had uniform rates; four of them had more than fifty per cent of their consumers on special rates. None of the systems outlined above were universally applicable to all the central stations examined.

Paradoxical as it may seem, the stations realizing the lowest income per kilowatt-hour were generally making the largest return on their total investment. As all of these stations showed the greatest kilowatt output compared with their total generating capacity, I have concluded that their increased earnings were entirely due to a greater use of light, which is very apt to follow the introduction of low rates. In addition to the examination of other stations, I have had occasion to fix rates for three central stations during the past year. Of the many trying problems that are apt to confront a central-station manager, I am free to confess that I felt less ability to deal with the rate question than with any other that might have come up. I have tried to study the rate question, simply to be able to act intelligently when again forced to decide on the rearrangement of rates for an existing central station or on the arrangement of rates for a new central station.

From a commercial standpoint, we are governed by two general laws: First—We must not sell at less than cost to us.

Second—We must sell at no greater cost to the consumer than that at which the same service or a suitable substitute can be obtained by other means.

This gives us certain limitations upon which to base our methods of charging.

First—Our minimum must be not less than the cost to us; and

Second—Our maximum must be not greater than the worth to the consumer.

62—Factors Affecting Rates

Other factors that may be considered are these:

First—If we must provide for a heavy peak for one month or one night in the year, it is desirable to have as nearly as possible the same demand throughout

the year (assuming, of course, the same characteristic load curve), and any system tending to depress this peak at other seasons than our maximum load, is unwise and objectionable.

Second—Any system that tends to depress this curve at any other point than the peak, is unwise and objectionable.

Third—If we lose on one customer, we must make it up on another customer.

Fourth—If we lose on some customers, we cannot sell so cheaply to others, and are at a disadvantage when sharp competition is met.

Fifth—If we lose on one customer for a portion of a year, we cannot realize the same yearly profit without charging a correspondingly higher profit for the rest of the year.

Sixth—There are certain short-hour consumers that are a loss to the central stations' operation at even twenty cents per kilowatt-hour.

Seventh—The variations in cost of lighting to the consumer during different seasons of the year should not be greater than the variations in cost to us.

Eighth—Legal restrictions in central-station operations will increase rather than diminish.

Ninth—It is desirable that our methods of charging should permit of favorable comparison with other means of illumination, and especially with isolated plants.

Tenth—Under an ordinary meter-rate system a consumer that has two means of illumination is apt to use electricity for short-hour consumption and other means for long-hour consumption.

Eleventh—We are more interested in knowing what our consumers' maximum demand is going to be, than in knowing what it has been.

629—Competition

As one of the chief factors in determining the proper methods of charging is to meet competition, a short consideration of this subject is not out of place. It is probably necessary to consider only the sources of competition named below.

I give the first three of them in the order that I consider to be their future importance:

First—Natural light.

Second—Isolated plants.

Third—Mineral oil.

Fourth—Gas.

I do not attempt to place gas in any order of importance, as its future for lighting is largely problematic, and should I give the possibilities that I see for this agent, it might lead the discussion from the real merits of the subject of my paper. I will consider it only in the sense of its present development.

The competition from natural light is seldom considered, in spite of the fact that in many instances artificial light is cheaper and more satisfactory than natural light. The most frantic efforts in architecture are often made to obtain natural light and ventilation, frequently at the sacrifice of room and economy in building. I believe many of our modern buildings could be artificially lighted and ventilated at less cost than the sacrifice of room often requires. Natural light is not always to be preferred to artificial light. I have often

closed my shade while in my office in New York, and have resorted to artificial light in preference to the reflected light from the glazed wall on the opposite side of the court, which is at times extremely irregular, owing to the sun being momentarily obscured by clouds. The primary reason for architecture that yields artificial light is often an effort for ventilation, which can always be more satisfactorily furnished by artificial means. The manager of a large industrial plant told me that to his surprise the cost of production had been materially lessened by working the factory double time. The cost of artificial light had proved to be considerably less than expected and very much less than other savings effected.

Isolated plants have proved active competitors and a thorn in the flesh for more reasons than one. Of all forms of competition I like this one least. Bad methods of charging have cultivated the isolated plant to an appalling extent. Inability accurately to determine cost of service, backed by threats of isolated plants from consumers, has cost the central stations of the country thousands of dollars. An isolated plant generally robs the station, not only of a large consumer, but of a long-hour customer, and hence a profitable one.

In reported costs of current from isolated plants, nothing is ever allowed for interest, depreciation and ground rent, and seldom is anything allowed for repairs, risk and wages. The installation of isolated plants can generally be forestalled, but competition from oil and gas cannot be entirely eliminated. Many buildings have boilers already installed for heating, and they feel that the cost of operating a dynamo will not be much greater. They sometimes forget that heat is wanted but a few months in the year, and is objectionable for the rest of the year; that in the heating season heat is wanted most in the morning when no light is wanted, and least in the evening when most light is wanted.

Competition from isolated plants requires the central stations' most careful consideration. The installation of one isolated plant is apt to encourage the installation of others, and isolated plants often grow into competing central stations, and in making new plans for methods of charging we should consider competition from isolated plants more than from gas and oil.

There are certain classes of short-hour consumers that the central station cannot possibly hope to supply at a profit. If supplied at a loss, other customers must pay this.

Aggressive competition with gas is apt only to precipitate an active war which will be harmful to both companies. Those who use electricity under ordinary methods of charging and also use oil or gas generally use the electricity for intermittent and short-hour use and the other means for constant and long-hour use.

A method of charging which will reverse this order is what is wanted. Better let the gas company supply the consumer you cannot supply

profitably, and aim to get in return a long-hour consumer that you can supply profitably.

Acetylene gas has been given no attention, although it may demand careful consideration later. It was demonstrated six years ago that acetylene could be marketed at a competitive price with gas and electricity, but up to date there seems to have been more attention paid to the marketing of the stock and bonds than to the commodity.

COURT DECISIONS

NEW YORK

77—Safety of Service.

PEOPLE ex rel. BROOKLYN HEIGHTS RAILROAD COMPANY v. PUBLIC SERVICE COMMISSION FOR THE FIRST DISTRICT et al. On writ of Certiorari to Review Orders of the Commission Requiring the Equipment of Cars with Power Brakes and Geared Hand Brakes. Decision of the NEW YORK SUPREME COURT, APPELLATE DIVISION, FIRST DEPARTMENT, Affirming the Commission's Order. July 10, 1913. 142 N. Y. Sup. 942.

This is a complaint on the part of the street railway companies constituting the Brooklyn Rapid Transit System against an order of the Commission requiring the equipment of cars with power brakes, on the ground that the measure is unnecessary, and that, inasmuch as it will mean the expenditure of more than half a million dollars, it is unreasonable. The Court after receiving the testimony, deems that the evidence does not preponderate against the Commission's order, and dismisses the writ.

22—General Powers of Commissions.

The following cases are quoted as sustaining the powers of the Commission under the Public Service Commission Law:

GUBNER v. McCLELLAN, 130 App. Div. 716, 115 N. Y. Sup. 755.

PEOPLE EX REL. JOLINE v. WILLCOX, 129 App. Div. 267, 113 N. Y. Sup. 861. Affirmed 194 N. Y. 383, 87 N. E. 517.

See also PEOPLE EX REL. N. Y. C., Co. v. PUBLIC SERVICE COMM., 195 N. Y. 157, 88 N. E. 261.

With reference to annulling of the Commission's orders the Court says:

In the interests of the convenience and safety of the public the Legislature vested the Commission with broad discretionary powers, and it would require clear and convincing evidence that their determination on the facts was erroneous to warrant the Court in annulling the order.

MINNESOTA

789—Kind of Service.

STATE ex rel. W. J. ARMSTRONG COMPANY v. CITY OF WASECA et al. Suit to Compel the Municipal Plant to Furnish Electric Current to Three-Phase Motors Under Three Horse Power. Decision of the

MINNESOTA SUPREME COURT Ordering the Service, on Condition Customer Pays All Extra Expense. July 3, 1913. 142 Northwestern, 319. This customer, after having installed two three-phase motors, applied to the municipal electric plant for power service. The manager of the city plant refused the connection on the ground that he could not furnish power to operate the three-phase motors in question without the purchase of two transformers, but offered to furnish power if the customer would install one-phase motors. The applicant stated that though his company proposed to use less than 3 horse power to begin with it expected to use 10 or 15 horse power within the year.

The Court rules that the Municipal Plant should have provided the service, since it has undertaken to furnish a public utility, and is to be governed in its duties and obligation by the same rules as apply to private persons or corporations doing the same business. The city is obliged to furnish power to all applicants, who shall pay its proper and reasonable charges therefor. It cannot arbitrarily dictate to consumers what appliances they shall use.

The Court holds, however, that the consumer must pay the extra expense of furnishing this service.

If, then, a particular consumer desires service which the city can supply only by the installation of transformers at an expense which is substantial and which is not entailed in furnishing power to others, the consumer who occasions such special expense should bear the burden thereof. Any other rule would operate as a discrimination in his favor. . . .

If the board has not yet fixed rates or charges adapted to this class of service, it is its duty to do so. The trial court should have issued a writ of mandamus requiring that respondent city and its water and light board furnish relator the power asked for, on condition of payment by relator of any proper rate or charge to cover expenses which may be incident to such service in excess of that entailed in installing electric power service for consumers generally, such rate or charge to be made in such reasonable manner as the board shall determine.

NEBRASKA

83—Municipal Ownership.

BELL et al. v. DAVID CITY et al. Suit to Restrain the Construction of a Municipal Electric Light System. Decision of the NEBRASKA SUPREME COURT, Sustaining the City's Action. June 26, 1913. 142 Northwestern, 523.

The evidence brought forward in this case showed that the only legal authorization for the construction of municipal utilities is conferred by two special statutes, one authorizing the construction of light plants and the other of water plants. The electors voted to bond the city for the purpose of constructing the electric plant, the specifications

however on which the election was held calling for the furnishing of power and heat, and also for the operation of the pumps of the city's water plant. The owners of the existing plant brought this action for an injunction, contending that under the law no such combined plant could be built, and that the purpose for which money raised by taxation may be used must be definitely stated in an election and expended only for that purpose. The Court holds that while the taxpayers could not vote bonds to raise a certain sum of money to build a light plant and also vote bonds to raise a certain other sum to construct or enlarge a water plant and then transfer the money so raised from one fund to the other; yet in this case, the money was lawfully raised for a light plant, and the furnishing of power and heat and the pumping of the city water supply are merely incidental and not violative of the legislative intention. The decision also holds that the City's construction must be such as will not interfere with the plant or right of way of the existing company.

2— PUBLIC SERVICE REGULATION MASSACHUSETTS

ACTS AND RESOLVES PASSED BY THE LEGISLATURE OF MASSACHUSETTS DURING THE SESSION OF 1913. 1046 pages.

Most of the legislation included in this report is not of especial moment to utilities. There are, however, two acts relating to minimum charge, various acts relating to holding companies and an act changing the name of the Railroad Commission to the Public Service Commission, enlarging its membership and increasing the powers.

54—Minimum Charge.

The act relating to minimum charge for electricity is as follows:

No charge shall be made by any person, partnership or corporation furnishing electricity for lighting purposes for the use of a meter during any portion of the twelve consecutive months, if the consumer during that time uses electricity to the value of nine dollars. P. 427.

The provision for minimum charge for gas is:

Section 1. It shall be unlawful for any person or company furnishing gas to consumers to charge a consumer for the use of the meter for any part of the fiscal year if the consumer during that fiscal year uses gas to the value of seven dollars or more.

Section 2. Violations of this act shall be punished by a fine not exceeding one hundred dollars for each offence. P. 142.

149—Holding Companies.

Holding companies are placed under the supervision of the Railroad and Gas and Electric Light Commissions (p. 326). The commission is given power to investigate and order the production of books of such corporations, and by another act (p. 391) is compelled to make public all information concerning them. Another act (p. 318)

forbids a holding company's using the name or title of a public service corporation, and another (p. 391) provides that hereafter no corporation, not permitted by special law to hold stock in public service corporations, may hold more than 10 per cent of stock of any utility.

REFERENCES

RATES

224—Contracts.

RIGHT OF THE MARYLAND COMMISSION TO ANNUL A CONTRACT, *The Gas Age*, 1/4 page, August 15, 1913, p. 166.

William Cabel Bruce, general counsel for the Maryland Public Service Commission, has given an opinion upon the right of the Commission to annul a contract made between the Consolidated Gas, Electric Light and Power Company and any consumer, previous to the formation of the Commission. The opinion holds that the Commission has the right to annul the contract, because "the company took its charter and the customer took his contract subject to the paramount reserved right of the general assembly to annul the rate fixed by the contract by prescribing a different one, either by its own direct action or through the agency of the Commission." A list of cases supporting the opinion is given.

51—Cost of Service.

THE COST OF MANUFACTURING ELECTRICITY, by H. M. HOBART, *General Electric Review*, 10 pages, September, 1913, p. 617.

This describes the process of evolving electricity from coal, recommends the substitution of electrical units for British thermal units in calculating over-all efficiency values, and discusses the comparative cost of manufacturing electricity in central stations equipped with internal-combustion engines, and steam engines, subdividing costs in each case into production, investment and administration costs. There is a discussion of the influence upon the cost, of the power and load factors, and of the kind of electricity and its pressure. Various tabulations are given, and a bibliography of papers dealing with the cost of manufacturing electricity.

61—Character of Service.

ELECTRICITY IN A MODERN SHOE FACTORY, *Electrical Review and Western Electrician*, 5 pages, August 30, 1913, p. 407.

This is a description of the recently completed shoe factory of the George E. Keith Co. at South Boston, Massachusetts. The plant is completely equipped with the electric drive, the service being furnished by a gas-engine plant located in an adjacent power house. A complete description is given of the arrangement of the power plant, the lighting system, and the motor equipment in the factory proper. The article is illustrated, and includes a tabulated list of the motors installed, with their respective drives.

61—Character of Service.

MISCELLANEOUS MOTOR DRIVES, *Electrical Record*, 5 pages, August, 1913, p. 19.

This includes the description of various interesting motor drives: an air-compressor for use in the United States Government torpedo service; a refrigerating machine in a brewery; a motor-driven hoist used as a scraper; the motor applications in the Hampton, Virginia, Normal and Agricultural Institute; the motor applications in two Grand Rapids Manual Training High Schools; the motor equipment in a Milwaukee cigar-box factory and a Milwaukee pattern-shop; a high speed hack-saw; and motor-driven glass blowers for gas furnaces. The article is illustrated, and data of the school, factory, and pattern-shop installations are given.

INVESTMENT AND RETURN

36—Depreciation.

A STUDY IN DEPRECIATION, by DR. LOUIS BELL, *Electrical World*, 1 page, August 23, 1913, p. 379.

This article emphasizes the uncertainty of the useful life of a physical structure and characterizes "depreciation" as "a somewhat mysterious thing," illustrating the point by describing what took place in two Pacific coast plants built twenty years ago, as regards life of the equipment then installed.

351—Revenue.

DETERMINATION OF PROBABLE OPERATING REVENUE, by LOUIS E. FISCHER, *Electric Railway Journal*, article and editorial, 6½ pages, August 23, 1913, p. 301 and p. 291.

The above article is an analytical study of the operating revenue of a proposed interurban railway, based upon an examination of statistics of various normal lines, in normal territories, indiscriminately selected. There is a discussion of the small amount of "other than passenger" revenue and of the barriers against the carrying on of an extended freight traffic by electric railways. In studying the relation between the operating revenue and the population served, the farm population is eliminated. The roads are divided into two classes, (1) those having a primary terminal, and intermediate population, but no secondary terminal; and (2) those having, in addition, one or more secondary terminals. The study of the first class shows that approximately the revenue varies directly as the intermediate town and village population (from \$7 to \$13 per capita). The conclusions reached in study of the roads of the second class are, (1) that where the secondary terminal is removed from the principal terminal a distance of forty miles or less, the revenue will vary between \$6 and \$20 per capita of that secondary terminal population, depending upon the causes for intercommunication and the efficiency of the service rendered; and (2) that when the secondary terminal is removed from the principal terminal a distance greater than 40 miles the revenue of that secondary terminal population will be diminished practically 10 per cent for each ten miles of increased distance.

In neither case does the population of the primary terminal, and the number of car miles operated, affect the operating revenue. Various tabulations and charts are given.

The editorial comments on the difference between city and interurban electric railways in regard to the influence upon the traffic of the population served; and mentions the early theories which were tried in regard to calculating probable profits for interurbans.

33—Capitalization.

FINANCING A GAS COMPANY, by O. B. LIANSINGER, *The Gas Age*, 2 pages, August 15, 1913, p. 158.

This is a study of investments along the lines of the stock and bond business in its relation to public utility corporations.

Essential features of bond and stock issues are outlined and statistics quoted to substantiate the assertion that gas securities are considered the safest of public utility securities and rank first as to earning power of the capital invested.

Particular reference is made to the Philadelphia Suburban Gas and Electric Company, a detailed outline of its financing being given, together with a statement of its relation to the American Gas Company. Special emphasis is put on the desirability of employees' being familiar with their company's financing, and the growth in business which will result from furnishing the public with detailed statements of financial standing and general conditions.

112—Franchises.

FRANCHISE DRAFTED FOR METROPOLITAN STREET RAILWAY, *Electric Railway Journal*, 2 pages, August 23, 1913, p. 310.

This discusses the principal features of the new Kansas City street railway franchise (effective also in Kansas City, Kansas), which is being worked over by representatives of the company and the city. Among the proposed features are provisions that no part of the earnings shall be used directly or indirectly to increase the capital account, and that the contract or capital value shall not be increased in any way, except where new money is obtained or invested; that the company shall not sell, mortgage, or encumber any of its property without the consent of the city; and that there shall be a five-cent fare, with universal transfers. The rate is not to be reduced at any time if the effect of such reduction impairs to any extent the 6 per cent return allowed on capital, or materially impairs the right of the shareholders to receive one-third of the surplus at the time fixed for such participation according to the earning power of a 5-cent fare, or diminishes the city's share of earnings to such an extent as to defeat paying off one-half of the capital account and consequential city ownership by the time this contract expires.

In the negotiations between the company and the city, Mayor Jost has proposed to substitute for the present board of control, which consists of two members and a standing arbitrator, a single street railway commissioner to be chosen by the cities and company, subject to the approval of the Missouri and the Kansas commissions. In case the present board of control is retained, the mayor has signified his willingness that the city member be subject to the approval of the Missouri commission.

31—Valuation.

THE TRUE VALUE OF PUBLIC-UTILITY PROPERTY AS IT AFFECTS PUBLIC WELFARE, editorial, *Engineering News*, $\frac{3}{4}$ page, August 21, 1913, p. 367.

This denies the justice of the decision of the Appellate Division of the New York Supreme Court in the Kings County Lighting Case (see 3 RATE RESEARCH 164) allowing the consideration of going value and the unearned increment in paving over mains in valuation for rate-making. It is asserted that appeal should be taken; and that the case emphasizes the need of including in future public utility franchises a closer definition of the basis for adjusting rates.

PUBLIC SERVICE REGULATION

211—Qualifications of Commissioners.

PERSONNEL OF PUBLIC SERVICE COMMISSIONS, by GEO. L. MYERS, *Journal of Electricity, Power and Gas*, 2 pages, August 23, 1913, p. 176.

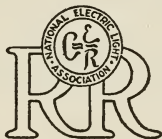
This states that, while much study has been given to the provisions of public utility laws which will insure effective regulation, too little consideration has been given to the personnel of the commissions; that the question of personal qualifications is all-important, and of the utmost concern to both the public and the utilities. Politics should have nothing to do with the make-up of commissions, since there is a tendency to choose a man because of his political affiliations, or his being representative of a certain locality in the state; and since there is a tendency to change the personnel of the commission with the change of parties, thereby often removing men when they are becoming most competent. The paper suggests as the remedy, (1) the election of commissioners at large by all qualified voters of the state, (2) strict non-partisan election, with no party name on the ballot, (3) the election of no more than two commissioners biennially, (4) the preferential system of voting, (5) the recall, (6) a term of six years, (7) and the payment of an adequate salary.

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September 10, 1913

No. 24

RATE RESEARCH



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CONTENTS	Page
RATES	371
Famous Rate Papers—No. 3	371
CO-OPERATION OF PUBLIC SERVICE COMPANIES WITH REGULATORY BODIES	378
Bell Telephone System	378
REFERENCES	378
Rates	379
Investment and Return	381
Public Service Regulation	382
Municipalities	383
General	383

Rate Research

Vol. 3.

CHICAGO, SEPTEMBER 10, 1913

No. 24

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATES

FAMOUS RATE PAPERS—No. 3

EQUITABLE, UNIFORM AND COMPETITIVE RATES

By HENRY L. DOHERTY. Read before the National Electric Light Association, Chicago, Ill., May, 1900. *Proceedings of the Twenty-Third Convention of the National Electric Light Association*, pp. 289-343. Begun in 3 RATE RESEARCH 291.

4—Rate Theory

The details of any satisfactory rate system must

First—Prevent fraud.

Second—Not unnecessarily complicate office records.

Third—Be easily understood by the consumer.

Fourth—Be competent without objectionable inspections, which reflect on the honesty of the consumer.

Fifth—Encourage a liberal use of current compared with maximum demand.

Sixth—Inspire the confidence of the consumer in its accuracy.

If it calls for any special measuring or recording instruments they must meet the following conditions:

First—They must be inexpensive to purchase and install.

Second—They must be durable and reliable.

Third—They must require minimum attention.

Fourth—Chances for errors should be as little as possible, and errors in their action or reading should be capable of correction, with ability to demonstrate this to the consumer.

5—Rate Practice

Owing to lack of time, I have read comparatively little of the literature on the rate question. To avoid repetition, which unnecessarily consumes the time of a convention like this, it is highly important that all published literature on any particular subject should be thoroughly read before attempting to add to it. I have been the victim of circumstances in gathering data on which to base my arguments. I intended to take the average results of many plants to determine cost of installation and operating expenses, but the reports showed such a marked variation that they could not be intelligently used without further investigation. I obtained practically no information that could be intelligently used in a paper of this sort. I did, however, obtain much information that proved interesting to me,

EDITORIAL NOTE.—All indented matter is direct quotation.

and information that I think will also interest others. In general, the cost of the plants appeared to range between \$200 and \$400 per kilowatt capacity, sometimes going to \$1,000 per kilowatt capacity. The percentage demand per connected load seemed to vary from twenty-eight per cent to eighty per cent. A fair estimate would seem to be about thirty-five per cent on meter basis and seventy-five per cent on flat-rate basis. Consumption per lamp per year seemed to be very largely influenced by local conditions and the cost of current. It is reasonable to suppose that the average consumer increases or curtails his consumption more from a financial standpoint than from a standard of light. He fixes his mind on the sum he is willing to pay, and if his bills exceed this amount, he decreases his consumption.

Of the central stations reporting the higher the cost of current the shorter the use of the connected load, reports varied from 10,646 watts per year per lamp wired up to a figure incredibly high as compared with plants that have come under my immediate supervision. From eighteen to twenty-five kilowatt-hours per year per lamp wired up, can be taken as a fair average for western cities. Compared with population, lamps wired up varied from one and one-half lamps per capita to one-fifth of one lamp per capita. Income per capita varied from fifty cents to \$3.50 per capita. Income compared with investment varied from ten per cent to forty per cent. Difference between station output and current sold was seldom attainable, and plants reporting on this point generally showed losses that would cause a gas manager to have violent spasms. One alternating-current station reports an all-year efficiency of lines, meters, and transformers of over seventy per cent, and a monthly efficiency for December and January of over eighty per cent. Only one station separates difference between station meter registration and consumers' registration into "accountable" and "unaccountable loss." From the gross difference they subtract transformer iron loss and meter shunt loss, and the difference is termed by them "unaccounted for," and is represented by their C²R loss, faulty registration of meters, theft of current, and general sources of "unaccounted for."

352—Expense

In the reported costs of operation, some other interesting figures were noted. In general, the extreme variations could only be explained by different methods of accounting. Abundant evidence was to be had that the central-station business of the country is seriously in need of good and uniform accounting. In every instance the cost for boiler fuel was such a small portion of total expense as to lead me to believe that we have heretofore given this expense undue consideration. Cost of lamp renewals in different stations varied as much as the lengths of different pieces of string. Some stations reported cost of lamp renewals at almost a negligible figure. Two stations reported cost of lamp renewals at approximately the cost of boiler fuel. Assuming cost of lamps at eighteen cents each and a life of 600 hours,

the expense is six-tenths of a cent per kilowatt-hour. This would be equivalent to cost of boiler fuel if six pounds of coal costing two dollars per ton were used per kilowatt-hour generated. The importance of this item of expense seldom seemed to appeal to the central station manager, as the cost where shown on a kilowatt basis was generally figured on total output of station, which included current sold for power and arc lighting. One station has a much larger output in kilowatt-hours for power purposes than for incandescent lighting, and yet has but one-fourth of the generating capacity, both being taxed at their peak to the utmost.

514—Demand Basis

The basic reason for meter rates based on quantity of consumption is the mistaken idea that the larger the consumption, the less the cost to the station. The basic reason for the New York and Wright demand system is the idea that the larger the consumption, the less is the corresponding cost to serve. A certain expense is incurred for "readiness to serve" and an increased consumption does not occasion a corresponding increase in expenses. Now, if our cost is on this basis, and we want a system of charging that will correspond to the cost, why should we not make our rates on this same basis? Why should we not charge them at least our cost for readiness to serve?

Our expenses for "readiness to serve" are fixed by:

First—The number of consumers.

Second—The number of meters.

Third—The maximum current demanded.

If our cost is the result of these factors, why should we not base our charges on them? This seems to me the most natural and logical course. It corresponds to the cost for service from isolated plants, for such an installation occasions:

First—A certain cost for each plant, regardless of size.

Second—An additional cost, based on capacity demanded.

Third—An additional cost per kilowatt-hour generated.

52—Determination of Demand

If we are going to make a consumer pay for readiness to serve his maximum demand, how shall it be fixed or determined? Should a consumer pay for his maximum capacity or his maximum demand? If he is made to pay for his maximum capacity it will tend to curtail his installation, and thus probably lessen his consumption, and it also puts a premium on fraud, demanding expensive and objectionable inspections. Shall we take his maximum demand for the year or for the month? The central station must provide for his maximum yearly demand, and it seems to me conclusive that it is his maximum yearly demand he should pay for. Shall we make him pay for what he has demanded or for what he will demand? If we assume that a central station has but one consumer, and he provides an installation which will translate 400 kilowatts, we can hardly afford to let him

pay for what he has demanded, but must make him pay the fixed charges for what he may demand, as this is what we have been compelled to provide. If we make him pay for only what he has demanded, and this is not equal to what he may demand, we must charge him a correspondingly higher rate for current, and this charge cannot be intelligently fixed in advance. I propose that we charge consumers at our cost for readiness to serve, allowing them to contract for whatever capacity they choose, limiting the capacity by suitable means; each contract to run a year and consumer allowed to increase his capacity at will, but not lessen it, except at the end of a year.

524—Limiting Demand

The following means have occurred to me for limiting his demand.

First—Fusing to capacity demanded.

Second—The use of a circuit-breaker in place of the fuse.

Third—An interrupter causing the lights to wink when capacity paid for is exceeded.

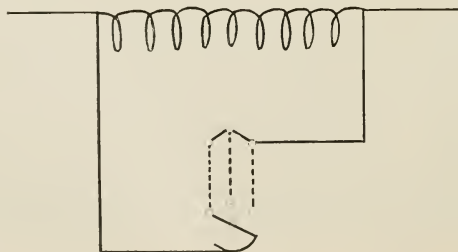
Fusing, to be satisfactory, should provide for a number of relay fuses connected on a multi-point switch, permitting the customer to throw on another fuse in case he should unconsciously exceed his capacity. An automatic electric bell or vibrator could be used to notify him that he is burning in excess of his capacity. If desired, a device as diagramed below could be used on alternating currents.

A circuit-breaker can be used in place of the fuse if desired.

For direct current, a resistance can be used in place of the reactance coil. An interrupter can be used on alternating currents, with movable coil or movable core, which will vary the electromotive force if the maximum demanded is exceeded. Numerous simple and satisfactory appliances can be provided to prevent the maximum demand being exceeded.

52—Determination of Demand

I would fix the charge for readiness to serve by the minimum cost to the station of all fixed charges and fixed expenses. I would pro-



portion it on the basis of: (a) consumer, (b) meters, (c) maximum demanded.

I give below an analysis of the results in one station for year ending May 1, 1900. The total expenses are in first column; division of fixed and operating expenses in columns 2 and 3; a percentage division of fixed charges in columns 4, 5 and 6, and their corresponding values in columns 7, 8 and 9. Taxes, interest and depreciation are obtained by estimates. The station has grown on the instalment plan, and the investment cannot be accurately determined. I have, therefore, estimated worth of station as follows to obtain my fixed charges:

Real estate	\$ 5,000	@	5%	app.	\$	250.00
Building	6,000	@	5%	dep.		300.00
Boilers, heaters and pumps.....	12,000	@	8%			960.00
Engines and condensers	15,000	@	8%			1,200.00
Generators	12,000	@	8%			960.00
Switchboard	3,000	@	10%			300.00
800 poles set cross-arm	12,000	@	15%			1,800.00
60,000 pounds wire @ 18c.....	10,800	@	2½%			260.00
Stringing wire	3,000					
Transformers	7,500	@	8%			600.00
1,000 service connections @ \$5.....	5,000	@	10%			500.00
Lightning arresters and incidentals.....	3,000	@	10%			300.00
Engineering and supervising.....	6,000					
Legal expenses and rights.....	3,000					
Interest while building	6,000					
925 meters, \$15.....	13,875	@	10%			1,387.50
18,000 lamps, 17c.....	3,060					
	\$126,230		6.62%		\$	8,317.50
Taxes @ 2% of 50%.....						1,262.30
Interest						6,311.50
						\$15,891.30

Income and Sales.

\$38,480.18. 307,389 K. W.-hours sold. Average price, \$0.12518.

Connected up,

900 consumers.

925 meters.

18,000 lamps.

Consumption.

341.4 K. W. per consumer.

332.1 per meter.

17.06 per lamp.

I have assumed that the aggregate connections would equal two-thirds of the lamps wired up.

As a matter of interest, I give a graphic chart showing the corresponding value of these various expense items.

This system of charging will be immediately put in use at one central station with which I am connected, but the conditions are so unusual that you would not be particularly interested in the plans adopted. I am also seriously considering the advisability of putting this system in use in another station with which I am connected. I am afraid a charge of practically ten dollars per consumer will prove excessive, and have therefore fixed on an arbitrary charge of three

dollars per consumer, and have raised my demand charge from \$1.34 per lamp to \$1.50 per lamp. I give you below a table showing the cost per lamp for various sized installations, based on charge for readiness to serve of three dollars per consumer per year; three dollars per meter per year; \$1.50 per lamp demanded per year; and five cents per kilowatt for current, on basis of consumption of previous year, being 25.583 kilowatt consumption per lamp of estimated capacity demanded:

	Total expense	Expenses proportional to K. W. output	Minimum expense for readiness to serve	Percentage division			Value		
				Per consumer	Per meter	Per K. W. capacity	Per consumer	Per meter	Per K. W. capacity
1. Fuel.....	\$2,478.00	\$2,478.00		Per cent	Per cent	Per cent			
2. Oil and waste.....	176.00	88.00	\$88.00			100			\$88.00
3. Repairs— Boilers and engines...	493.00	393.00	100.00			100			100.00
4. Repairs— Dynamos and switch-board.....	88.00	88.00							
5. Repairs— Buildings and property	132.00	32.00	100.00	50		50	\$50.00		50.00
Station labor.....	4,518.00	1,338.00	3,180.00	50		50	1,590.00		1,590.00
6. Repairs— Pole lines and conductors.....	1,500.00	500.00	1,000.00	50		50	500.00		500.00
8. Transformer in a maintenance.....	400.00	200.00	200.00			100			200.00
9. Meter maintenance.....	640.00	400.00	240.00		100			\$240.00	
10. Reading meters.....	336.00		336.00		100			336.00	
11. Lamp repairs and renewals.....	1,500.00	1,500.00							
12. Complaints and gratuitous work.....	600.00	600.00							
13. Office salaries and collecting.....	2,150.00	650.00	1,500.00	50		50	750.00		750.00
14. Office rent.....	600.00		600.00	50		50	300.00		300.00
15. Stationery, postage and sundry expenses.....	1,200.00	600.00	600.00	50		50	300.00		300.00
16. Fire insurance.....	500.00		500.00	50		50	250.00		250.00
17. Employees' liability insurance.....	500.00	250.00	250.00	50		50	125.00		125.00
18. Public liability insurance.....	250.00		250.00	50		50	125.00		125.00
19. Superintendence.....	1,500.00	500.00	1,000.00	50		50	500.00		500.00
20. Executive salaries.....	2,000.00		2,000.00	50		50	1,000.00		1,000.00
21. Taxes.....	1,262.27		1,262.27	25	*	75	280.88	138.75	842.64
22. Interest.....	6,313.99		6,313.99	25	*	75	1,405.06	693.75	4,215.18
23. Depreciation.....	8,317.50		8,317.50	25	*	75	1,732.50	1,387.50	5,197.50
24. Profit.....	1,025.42	1,025.42							
	\$38,480.18	\$10,642.42	\$27,837.76				\$8,908.44	\$2,796.00	\$16,133.32

Expense per consumer.....	\$9.898
Expense per meter.....	3.022
Expense per lamp wired up.....	0.8963
Expense per lamp demanded on station.....	2.0166
Expense per lamp demanded by consumers.....	1.3444
Expense per K. W. hour sold.....	0.03475

Meters installed	Lamps demanded, being two thirds capacity installed	Yearly fixed charge	Yearly fixed charge per lamp demanded	Monthly fixed charge per lamp demanded	Yearly charge per lamp demanded, including current at five cents per K. W. hour	Average monthly charge per lamp demanded, including current at five cents per K. W. hour
1	1	\$ 7.50	7.50	.625	8.78	.731
1	2	9.00	4.50	.375	5.78	.461
1	3	10.50	3.50	.291	4.78	.398
1	4	12.00	3.00	.25	4.28	.356
1	5	13.50	2.70	.225	3.98	.331
1	6	15.00	2.50	.208	3.78	.315
1	7	16.50	2.357	.196	3.636	.303
1	8	18.00	2.25	.187	3.53	.296
1	9	19.50	2.155	.179	3.435	.286
1	10	21.00	2.10	.183	3.38	.281
1	12	24.00	2.00	.166	3.28	.273
1	15	28.50	1.90	.158	3.18	.265
1	20	36.00	1.80	.15	3.08	.256
1	30	51.00	1.70	.141	2.98	.248
1	40	66.00	1.65	.137	2.93	.244
1	50	81.00	1.62	.135	2.90	.241
1	60	96.00	1.60	.133	2.88	.240
1	70	111.00	1.585	.132	2.864	.238
1	80	126.00	1.575	.131	2.854	.238
1	90	141.00	1.566	.130	2.855	.237
1	100	156.00	1.56	.130	2.84	.237

I give below a table showing cost per kilowatt for various yearly load factors from a quarter of an hour to twenty-four hours per day, and the corresponding amount charged consumers under different rate systems. The average receipts for current were .12518 per kilowatt-

Hours per day of using demand of station	K. W. output per year	Fixed expense per K. W. hour output	Total cost per K. W. hour output including operating expense	Receipts per K. W. hour by proposed rate. \$3.00 per service, \$3.00 per meter, \$1.50 per lamp and five cents per K. W. hour	Receipts per K. W. hour by Wright Demand system: sixteen cents first two hours, six cents after	Receipts per K. W. hour by flat rate of \$12 per year
		Cents	Cents	Cents	Cents	Cents
1	36,500	76.26	79.39	69.3	16.	262.73
2	73,000	38.13	41.25	37.1	16.	131.8
3	109,000	25.56	28.69	26.4	16.	90.9
4	146,000	19.06	22.19	21.0	16.	65.9
5	202,000	9.53	12.66	13.0	16.	32.9
6	438,000	6.35	9.48	10.3	12.66	21.9
7	584,000	4.76	7.89	9.	11.0	16.45
8	730,000	3.81	6.94	8.2	10.0	13.15
9	876,000	3.17	6.30	7.66	9.33	10.95
10	1,022,000	2.72	5.85	7.3	8.85	9.41
11	1,168,000	2.38	5.49	7.	8.55	8.22
12	1,490,000	1.91	5.04	6.6	8.00	6.59
13	1,752,000	1.59	4.72	6.33	7.66	5.48
14	2,336,000	1.19	4.32	6.0	7.25	4.11
15	2,920,000	.95	4.09	5.8	7.00	3.28
16	3,504,000	.79	3.92	5.67	6.83	2.74

hour, which, if plotted on this curve, would simply be a straight line from the vertical axis parallel with the horizontal axis at the altitude .12518 cents.

This gives us a profit-and-loss curve as illustrated.

I also give graphic load chart of these same data.

265—CO-OPERATION OF PUBLIC SERVICE COMPANIES WITH REGULATORY BODIES.

THEODORE N. VAIL ON REGULATION OF PUBLIC UTILITIES. Outline of the Policy of the Bell Telephone System in the Conduct of Its Business and Its Relations to the Public. *Electrical Review*, $\frac{1}{2}$ page, August 23, 1913, p. 365.

This outline of the policy of the Bell system was made in the course of a discussion of the suit brought by the national government against the company relative to the acquisition of certain telephone properties in the Pacific Northwest and the pending telephone investigations of the Interstate Commerce Commission.

2—Public Service Regulation.

"We believe in and were the first to advocate state or government control and regulation of Public Utilities; that this control or regulation should be by permanent quasijudicial bodies, acting after thorough investigation and governed by the equities of each case; and that this control or regulation, beyond requiring the greatest efficiency and economy, should not interfere with the management or operation. We believe that these bodies, if they are to be permanent, effective and of public benefit, should be thoroughly representative; they should be of such character and should so conduct their investigations and deliberations as to command such respect from both the public and the corporations that both will without question accept their conclusions.

83—Public Ownership.

"We believe that the public would in this way get all the advantages and avoid all the manifest disadvantages of public ownership.

132.1—Natural Monopolies.

"We believe that the highest commercial value of the telephone depends on its completeness. We believe that this highest commercial value can only be attained by one system under one common control, and that it cannot be given by independent systems unless they are operated under agreements which result in one common control and one common interest, in effect making them a single system.

34—Rate of Return.

"We believe that rates should be so adjusted as to afford the company sufficient revenue to pay such wages and compensation as will secure the most efficient service and to maintain the very highest and most advanced of plant apparatus. We believe that in addi-

tion such fair charges should be paid upon the investment in plant as will enable the company at any time to obtain money necessary to provide the plant required to meet the continuing demands of the public.

342—Dividends.

"We believe that any surplus beyond that necessary to equalize dividends on a fair basis should be used by the company for the benefit of the public and should be inalienable for any other purpose, and should be either invested in revenue-earning plant until it is necessary to replace a plant which may become inadequate or obsolete, or should be used to make the service cheaper or better.

132.9—Unnecessary Duplication.

"We believe that under proper governmental control and regulation the profits from promotion or operation allowed to be distributed should not be so large as to warrant or tempt complete duplication of plant and organization, with its duplication of its capital charges and its organization, operating, maintenance and depreciation expenses, and we do not believe that utilities giving at fair rates an efficient and sufficiently comprehensive universal service should be subjected to limited competition, not giving such service. Competition which ignores the obligation to furnish a complete and comprehensive service is not competition, is not for the benefit of the public in that it does not reach the whole public interested.

"If, therefore, complete duplication, with its dual exchange connection and dual bills for service, is a prerequisite to complete competition, government control and regulation cannot go hand in hand with competition."

REFERENCES

RATES

72—Rate Schedules

TELEPHONE RATE RAISE AUTHORIZED: NEBRASKA COMMISSION SANCTIONS FIFTY PER CENT INCREASE, *Public Service*, 1 $\frac{1}{4}$ pages, September, 1913, p. 95.

This is a discussion of the decision in the Lincoln Telephone and Telegraph Case, abstracted in 3 RATE RESEARCH 313 and 3 RATE RESEARCH 340. The paragraphs of the commission's report which describe the care and thoroughness with which the valuation was made are quoted, with a statement issued by the officials of the company regarding the commission's findings. The statement by the company asserts that while the rates fixed are not as high as the company feels they should be, no complaint has been made. Neither the Automatic nor the Bell exchange in Lincoln, when in competition, were making enough money to care for interest returns and depreciation, and the financial condition after consolidation was worse, because of the large expense of reorganization and elimination of duplicate telephones. The statement is made that the company has at no time been asking the community to pay any larger telephone bills as a whole than it did

before the two exchanges were made one, but has merely asked that the revenue lost through cutting out of all duplicate service should be made good to it, by an equalization and adjustment of rates; that "the investigation has shown very clearly, taking even the closely pared figures of the city's experts as a basis, that the new rates are not sufficient to cover all proper charges against the property"; and that in order to bring the revenue up to where it should be, the company will have to add revenue through increased business and practice many economies. Mention is made of the great reduction of telephone rates in the last 10 years, and of the much more comprehensive service rendered by the consolidated company. It is asserted that controversies such as the one just ended would have been avoided, had not companies in the past guessed at rates instead of fixing them scientifically.

514—Demand Basis.

GAS RATES, by ALTEN S. MILLER, a paper written for the 8th annual meeting of the American Gas Institute, October, 1913, *Gas Institute News*, 5 pages, August, 1913.

This article makes an analysis of the items which constitute "investment cost" and "customers' cost" in the gas business, the point emphasized being, that a system of rates, made on a basis of the cost of "performing the service," is much fairer than any other system, and companies using it have almost invariably won out in competition with companies using other systems of rates.

61—Cost of Service.

EFFICIENCY AND COST OF ELECTRICAL HEATING, by H. O. SWOBODA, *The Electrical Journal*, 8 pages, July, 1913, p. 676.

This is the third and concluding article of a series, the previous articles having appeared in the April and May issues. Four methods of carrying electrically generated heat to the point of application are outlined and a table is given showing the comparative cost of heat generated by coal, gas and electricity. While the conclusion drawn from the figures in this table is that the cost of electrically generated heat is higher than when coal and gas are used, seven reasons for the adoption of electrically generated heat are discussed. The article is concluded by a list of the capacities of electrical heating devices.

61—Character of Service.

THE HOTEL AS A CENTRAL STATION CONSUMER, by C. A. COLLIER. Presented before the recent Southwestern Convention at Macon, Ga. *Electrical World*, 1½ pages, August 30, 1913, p. 432.

This gives data and consumption curves to substantiate the statement that "no other type of customer offers the central station so large a revenue from the sale of energy or affords so advantageous a subject for advertising central station service as the hotel." The idea of exhaust steam heating at little or no cost by the isolated plant is pointed out as a fallacy and an illustration is given to show that very little or no credit can be applied to manufacturing cost, by exhaust steam heating in an isolated plant.

61—Character of Service.

THE HOTEL CONSUMER, Editorial, *Electrical World*, August 30, 1913, p. 409.

This emphasizes the need of convincing data on manufacturing costs of isolated plant service in order to demonstrate to the hotel keeper the actual economy of purchasing electricity and steam heat. The flat rate principal is called irrational and the hotel load is pointed out as very desirable central station business.

61—Character of Service.

DATA ON THE COST OF PUMPING IN WATER WORKS STEAM PUMPING STATIONS, by KENNETH F. LEES. Presented before the Last Annual Convention of the Connecticut Society of Civil Engineers. *Engineering & Contracting*, 2 pages, August 27, 1913, p. 248.

This article gives detailed data on the cost of pumping water in steam plants, considered under the following headings: 1. Losses in pumping; 2. Duty of pumping plants; 3. Cost of pumping equipment; 4. Cost of pumping as shown by calculation, for plants of varying capacity and type; 5. Cost of pumping as shown by results of actual practice. The conclusion drawn from the figures is that there is a great variation in the cost of pumping with location of plant, equipment of plant, and management, but that a cost of 4½ cents per 1,000,000 foot gallons would represent an average value for pumping in general practice.

INVESTMENT AND RETURN**222—Accounts.**

WISCONSIN COMMISSION POLICY IN VALUATION, *The Gas Age*, September 1, 1913, p. 210.

This reports the discussion on the paper on accounting by Halford Erickson, Wisconsin Railroad Commission, read before the recent annual meeting of the Wisconsin Gas Association. (See 3 RATE RESEARCH, 334.) The discussion brings out the value of expert accounting in that, by its use, utilities will not do themselves injustice by not knowing how to handle the material they have at hand. One detail point agreed upon in the discussion is that depreciation ought to be included directly under operating expenses and should not be treated as a separate item to be taken out after the total expenses have been summed up.

227—Valuation.

NEED OF VALUATION OF PUBLIC UTILITY COMPANY PROPERTIES, by HAROLD ALMERT, *Public Service*, 2½ pages, September, 1913, p. 83.

This outlines the recent growing demand for inquiry into and restriction of profits earned by public service corporations, the product of which demand is the Commission. The "personal equation" as applied to the Commissions is brought out, mention being made of the ease with which inexperienced commissioners can work untold hardships on both the utilities and the public. The basis for making an appraisal is anything but standard, as exemplified by the recent act calling upon the Interstate Commerce Commission to make valuations of common carriers. Emphasis is laid on the point that owners and operators of public utilities should have their properties appraised by a disinterested firm of engineers.

351—Revenue

ESTIMATING OPERATING EXPENSE AND COST OF CONSTRUCTION, by LOUIS E. FISCHER, *Electric Railway Journal*, 8 pages, September 6, 1913, p. 380.

This is an analytical study of the operating expense and cost of construction of a proposed electric interurban railway and is the second of a series of articles, the first of which was abstracted in 3 RATE RESEARCH 367. Operating expenses and way and structures accounts are classified as prescribed by the Interstate Commerce Commission. Tables are given showing actual operating expense for way and structures and equipment on ten typical electric interurban railways. No consistency is found in operating expense for way and structures; and expense for equipment varies from 2 cents to 3 cents per car mile. Other tables cover traffic expense, conducting transportation expense, taxes, primary construction costs, on typical interurban railways.

PUBLIC SERVICE REGULATION

2—Public Service Regulation.

THE CLASSIFICATION OF INVENTORY FOR WATER UTILITIES AND THE INSPECTION OF WATER WORKS SYSTEMS BY THE WISCONSIN RAILROAD COMMISSION. *Engineering and Contracting*, 1 page, September 3, 1913, p. 257.

The material in this article is abstracted from a paper by the Chief Engineer of the Commission, W. D. Pence, read before the Indiana Sanitary and Water Supply Association, on the functions of an engineering staff in public utility regulation. The main heads of the classification of inventory are: (a) Land, (b) Transmission and Distribution, (c) Buildings and Miscellaneous Structures, (d) Plant Equipment, (e) General Equipment, (f) Paving, (g) Materials and Supplies. In regard to water work inspections there is an outline of the work the engineering staff of the commission has done and is doing on the following problems: (1) the quality of the fire-stream service, (2) the problem of what steps should be taken to bring about a prompt improvement in service where the physical plant has been allowed to run down to a low state of maintenance, (3) the problem of the determination and enforcement of the sanitary adequacy of the supply, and (4) the electrolysis of water and gas mains due chiefly to stray currents from electric railways. Mention is made of various other incidental questions which the engineering staff is occasionally called upon to solve.

226.5—Standards of Service.

STANDARDS OF SERVICE, editorial. *The Gas Age*, September 1, 1913, p. 199.

This refers to the recent New York public service law amendment relative to the standards for the measurement and heat value of gas. This amendment practically takes the standard of service out of the hands of the legislature, since it expressly states that the Commission shall have the power "notwithstanding that another standard may have been fixed by statute." The Legislature fixed the present price of gas in New York City arbitrarily and since then have threatened to reduce it further. The statement is made that the tendency to have justice rule in such controversies is growing and will continue unless companies take unfair advantage of it. This act further gives the Commission power to require the heat value standard where advisable.

268—Public Service Laws.

THE PENNSYLVANIA PUBLIC SERVICE LAW. Editorial. *Engineering News*, 1½ pages, August 28, 1913, p. 431.

This is a summary of the more important provisions of this Law, abstracted in 3 RATE RESEARCH, 271 and 256.

265—Co-operation of Public Service Companies with Regulatory Bodies.

MUTUAL RELATIONS AND INTERESTS OF THE BELL SYSTEM AND THE PUBLIC, by THEO. N. VAIL, *Public Service*, 2½ pages, September, 1913.

This gives in full the article part of which is abstracted on page 378 of this issue. In addition to the outline of the company's policy in general, there is a financial statement including such items as outstanding obligations, book value of tangible assets, dividends, interest and taxes, and figures covering equipment, extensions from 1907-1913, number of employees, and distribution of stockholders.

MUNICIPALITIES

83—Public Ownership.

POLITICAL VERSUS PRIVATE OPERATION. Editorial, *Journal of Electricity, Power and Gas*, 2 $\frac{1}{2}$ page, August 30, 1913, p. 202.

This refers to the recent vote of 4 to 1, by the people of San Francisco, to assume the bonded indebtedness of a municipally-owned electric railway. The statement is made that the ultimate method of operating these lines is a question of deep concern to the people of San Francisco who well know the notorious inefficiency of the average municipal employee. Political operation of municipally owned public utilities is capable of far greater abuses than have ever been revealed in private operation of privately-owned utilities. The statement is made that private operation of municipally-owned utilities is an ideal susceptible of practical accomplishment, whereas political operation could be successful only in Utopia.

83—Public Ownership.

MUNICIPAL OWNERSHIP OF PUBLIC UTILITIES, an opinion by Mr. CHARMAN F. RANDOLPH of New York City. *Yale Law Journal*, 28 pages, March, 1913, p. 355.

This is a discussion of the legal aspects of the question of municipal ownership in this country. There is an outline of the function of the law in regard to municipal ownership, from the conception of the plant to its operation; of the relative constitutional powers of cities and states with regard to the question; and of the program usually advocated in the matter. The various steps in the procedure of gaining municipal ownership are indicated. There is a discussion of the debt prohibitions and limitations provided in many of the cities and states because of the stigmatizing reputation of debts in the early periods of municipal and government financing of utilities. In the matter of administrative control, the first requisite is said to be a board approximating as nearly as possible, under political conditions, the best type of business management, since the best public board is not likely to match the most efficient private administration. In connection with the discussion of employees, the statement is made that whether later laws be radical or conservative, there is a danger that the political influence of a great corps of public employees will be seriously abused, and it is even problematical how far legislation could be enacted and enforced to prevent improper combinations to cause wages, reduce hours, etc. Mention is made of the danger of unnecessarily high charges for materials and supplies because of "graft" and the tendency to favor local markets because of local pride and self interest. In regard to fiscal management it is pointed out that one type of administration will press for cheap service even at the cost of saddling annual deficits on the taxpayers, while another will endeavor to regulate service charges so as to make the enterprise at least self supporting. The paper upholds the imperative necessity of a thorough and impartial audit of accounts by the state. The statement is made that the best municipal administration of a complex utility work is likely to suffer by comparison with the best private administration; for being a part of the great machine of government, it will rarely display the freedom of action, the singleness of purpose and the enterprising spirit of the private company.

GENERAL

95—Progress in the Art.

THE FUTURE OF GAS LIGHTING IN VIEW OF ELECTRIC COMPETITION, by R. F. PIERCE, *Public Service*, 1 page, September, 1913, p. 105.

This outlines four considerations upon which the future of gas lighting depends and makes the point that this future lies principally in the hands of the gas

interests—as to what extent they utilize possibilities. Developments are anticipated in the supply of artificial gas, far more revolutionary than any that are likely to take place in the supply of electricity. A forecast is made that the existing illogical candle-power requirement will be eliminated in the interest of the consumer in the not too distant future.

149—Holding Companies.

SYNDICATE INTERESTS IN CENTRAL STATIONS, *Electrical World*, Article and Editorial, 2 pages, September 6, 1913, page 482 and page 458.

This article is a statistical analysis of number of plants operated by holding companies or other controlling interests and by independent owners and municipalities. The data were taken from McGraw's Electrical Directory, Poor's Manual, and Moody's Manual. Three tables are given showing, (1) the average population of towns listed between 1000 and 5000 population, (2) central stations by groups of states, and (3) by states and variations of population.

The editorial brings out statistics to show that through the purchase of small independent and municipal plants many opportunities may be grasped for the introduction and extension of the benefits of centralized production and economical distribution of a large area.

149—Holding Companies

REGULATION, by H. M. BYLLESBY, *Electrical World*, September 6, 1913, page 460.

This quotes from a letter referring to the payment of the next dividend on the preferred stock of the Standard Gas & Electric Company in script instead of cash.

The necessity of subsidiary companies' appearing before various regulating bodies on the questions of rates, taxation, protection, and extensions to properties has caused large expense for legal advice, traveling expenses, and expert and technical witnesses, has had a marked effect upon the earnings of the various properties held by the Standard Gas and Electric Company.

So far these controversies have reflected credit upon the companies and have brought about a more satisfactory working condition than previously existed, but with a marked increase in taxes.

19—General History of Electric Utilities

HISTORICAL REVIEW OF THE KEOKUK HYDROELECTRIC DEVELOPMENT, by WILLIAM LOGAN, *Electrical World*, 1½ pages, September 6, 1913, p. 462.

This outlines the development of plans, conceived in 1848, to utilize the Mississippi River for water power at Keokuk, Iowa. Interesting statistics are given on the completed project, which is now furnishing structural energy to St. Louis, a distance of 137 miles.

199—General History of Utilities.

SAYINGS AND WRITINGS ABOUT THE RAILWAYS, Pamphlet, 240 pages, published by the *Railway Age Gazette*, 1913.

This publication contains a representative collection of the expressions of railroad authorities in the form of abstracts from their books and articles, some thirty pages being given up to rates and rate making.

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CONTENTS	Page
Rate Research, Announcement of Index.....	387
RATES.....	387
Famous Rate Papers—No. 3.....	387
ISSUE OF STOCKS AND BONDS.....	390
New York Supreme Court.....	390
New York Commission (1st D.).....	392
COMMISSION REPORTS OF DECISIONS.....	392
Oregon.....	392
PUBLIC SERVICE LAWS.....	393
Wisconsin Water Power Act.....	393
STANDARDS OF SERVICE.....	393
Wisconsin.....	393
COURT DECISIONS.....	394
New Jersey.....	394
REFERENCES.....	397
Rates.....	397
Investment and Return.....	398
Public Service Regulation.....	398
Municipalities.....	399
General.....	400

Rate Research

Vol. 3.

CHICAGO, SEPTEMBER 17, 1913

No. 25

For statement of facts and opinions contained in papers abstracted herein, the Association does not hold itself responsible

RATE RESEARCH INDEX OF VOLUMES 2 and 3

The next number of RATE RESEARCH, which is the concluding number of Volume 3, will be devoted entirely to a classified and an alphabetical index of Volumes 2 and 3. Because of the amount of work involved in compiling such an index, it may be delayed.

RATES

FAMOUS RATE PAPERS—No. 3

EQUITABLE, UNIFORM AND COMPETITIVE RATES

By HENRY L. DOHERTY. Read before the National Electric Light Association, Chicago, Ill., May, 1900. *Proceedings of the Twenty-Third Convention of the National Electric Light Association*, pp. 289-343. The following are the concluding paragraphs of this article, begun in 3 RATE RESEARCH 291.

514—Demand Basis

Now, I expect to be told that

First—I shall drive away consumers;

Second—That I shall depress the peak;

Third—That the people will not favor the change.

I answer to the first of these objections: (a) that certain customers will be driven away, but they will be the unprofitable ones; (b) that enough of our present unprofitable ones will remain with us and will pay what their service costs; (c) that many of our present unprofitable consumers will abandon the use of gas and oil for long-hour consumption; (d) that many other customers will be attracted by our low kilowatt rate.

To the second objection: (a) I will admit that I will depress the yearly load peak for a given number of consumers, which I claim will be an advantage rather than a detriment; it will reduce interruptions of service, better our regulation, and decrease our line and transformer losses; (b) but it will encourage a more uniform load peak throughout the year, lessen the investment for meters, and increase

the accuracy of their registration by enabling size installed to be intelligently selected.

Your third objection is a matter of education, and I ask (a) if you expect a reduction in your telephone bill if you do not use it for a month? (b) is not this system the natural step to take in changing from flat rates? (c) is the consumer whose bill is reduced apt to object to the change? (d) can you afford to supply the consumer whose bill is increased at less than his schedule charge? (e) are not all objections to this proposed plan due to having improperly educated the public in the past? If you break your leg, you expect the surgeon to cause some pain in setting it, and this pain is chargeable to the accident and not the surgeon.

I claim for this system:

First—Greater uniformity.

Second—A tendency to produce a better yearly load and better daily load.

Third—An encouragement of long-hour lighting and the use of current for other purposes than lighting.

Fourth—Ability to meet competition of isolated plants.

Fifth—A weeding out of unprofitable business.

Sixth—Better satisfaction to consumers.

Seventh—A lessening of cost of production.

Eighth—A lessening of cost to consumer per kilowatt.

Ninth—Ability to dispense with high-priced, trouble-breeding, rate clerks.

Tenth—Ability to give better regulation.

Eleventh—A lessening of difference between registration of station and consumers' meters.

If desired a clock arrangement can be used to throw a heavy conductor in series with the demand meter, to encourage heavy use of current at desirable hours of the day.

A deduction for power users can be made from the kilowatt rate for incandescent-lighting current, to compensate for lamp renewals and regulation, and thus all classes of consumers can be supplied at a uniform rate.

Many isolated plants are installed simply to use idle capital. A trust fund could be created, and any customers wishing to provide the investment included in the charge for "readiness to serve" could be accommodated. I would not object to a deposit large enough to pay their entire charge for readiness to serve, allowing them the same rate on their money as paid on the bonds. A fund of this sort would do much to silence their objections, even though they should not take advantage of it.

95—Progress in the Art

The opportunities for development in the central-station business are simply unlimited. The instances are very rare where a properly equipped central station cannot profitably sell current at less than

the cost of production in an independent plant. There is no reason why we should confine ourselves to supplying small powers. Nothing should be too big for us to wrestle with. Many gas companies to-day sell more gas for fuel than for lighting, and the supply of power to the electric business should be what the supply of fuel is to the gas business.

411.2—Demand Charges

If the individual aggregate demand of your consumers is greatly in excess of your maximum demand, I see no reason why you charge to them for readiness to serve should not exceed the cost, provided rates yielding a profit should prove profitable to the central station in the long run.

61—Character of Service

The lower the rate at which we can give consumers current, the greater our opportunities for extending its use and finding new uses for it. There is a good deal of human nature portrayed in the story of the salesman who told his rural customer that a certain stove would save half the fuel, to which he replied: "I guess I will take two of them and save all of it." Better have several thousand customers planning means to use additional current, and thus diminish their kilowatt cost, than to attempt to do all of this planning yourself and then have to convince them of the wisdom of your ideas.

Fan work, ventilation, refrigeration, pumping, decoration, sign lighting, and miscellaneous power work, can be enormously developed by a low rate. As you decrease your rate, your consumers decrease their vigilance of consumption. A low rate will tend to put many basement, hall and bathroom lights in constant use. Many people are too lazy to even "press the button."

514—Demand Basis

Our salvation from many evils is to have the public understand that fuel and labor are not our only items of expense. The public get an inkling of the expenses of these items and conclude that the biggest part of our receipts is applicable to dividends.

Does any one, in figuring service from isolated or municipal plants, ever include interest, depreciation and taxes? Is there any better way to keep this in the public mind than by charging a certain amount for "readiness to serve?" If they have to pay for readiness to serve, they will include this item in their estimates when they start to figure what it will cost them to serve themselves.

I recommend this system to you as one that will develop your business, repress agitation for municipal ownership and the granting of competitive franchises, meet the competition of isolated plants and other means of illumination. I believe it will reduce the cost of production, better your load factor and regulation, lower the kilowatt cost to the consumer, increase the stability of your business, strengthen your securities and increase your earnings; in short, prove a panacea for most of the ills to which the average central station is heir.

221—ISSUE OF STOCKS AND BONDS

Two important stock and bond decisions have recently been handed down.

In the first of these, the case of *PEOPLE EX REL. WESTCHESTER STREET RAILWAY COMPANY, ET AL. v. PUBLIC SERVICE COMMISSION OF NEW YORK (2nd D.) ET AL.* (July 8, 1913) the SUPREME COURT, APPELLATE DIVISION, OF NEW YORK, (143 N. Y. Supp. 148) reversed the decision of the Commission, allowing the company to issue only \$434,000 of stock on property bought recently at a foreclosure sale for \$912,023.41. The Commission conceded that the purchase was made in good faith on competitive bidding, and that the sale was in all respects fair. It based its valuation chiefly upon the fact that the property was weighed down by a five-cent fare franchise which was binding upon the purchaser, (see 2 RATE RESEARCH 148) and which prevented the property from being operated at a profit; and that a part of the purchase price represented the franchises, which under the Public Service Commission's Law (§69), cannot be capitalized.

311.4—Market Value

If the decision of the Commission is right, there would be no purchaser for railroad property sold upon a mortgage sale, as it would not be known what value the Public Service Commission might put upon the property. The statutory right to mortgage carries with it the right to make available the mortgaged property, with every incident fairly necessary for that purpose, and as the property can be purchased for no practical use other than as a railroad, the right to capitalize the purchase price cannot be impaired, after the mortgage, by a statutory provision declaring that the franchise may not be capitalized.

314.22—Franchises

The company is not asking the capitalization of a franchise; it is asking that it may issue stock for the cost of the property on the foreclosure sale. If we were compelled to hold otherwise, this mortgage having been issued prior to the Public Service Commission Law, it would follow that the limitation of the right to capitalize its franchise would be invalid and ineffectual, as interfering with the property rights under the mortgage. . . .

311—Basis of Valuation

We must construe the statutes enacted since the mortgage as not violating property rights; but if such construction cannot be given, we must still see that vested property rights shall not be impaired by them. By the terms of the . . . statute the Commission may fix the fair value, taking into consideration the original cost of construction, duplication cost, present condition, earning power at reasonable rates, and all other relevant matters, etc. Certainly the fact of a sale upon bona fide competitive bids at public sale

upon foreclosure of a preceding mortgage are relevant matters to be taken into consideration. . .

221—Issues of Stocks and Bonds

An issue of stock for the purchase price at a public sale of necessary property is not watered or fictitious stock, and is not within the evil intended to be guarded against by this section [55 of the Commission Law]. The authorization of the Commission to an issue of stock does not carry with it the certificate of the state or the Commission that the property back of the stock is worth the amount thereof. It indicates merely that the stock is issued for a proper purpose, and, if for property purchased, that it was an honest purchase, and for the necessary and proper use of the corporation. The franchises purchased, by the authority to mortgage and by the sale, were property, and all of the property purchased was actually necessary for the use of the company. When the good faith of the transaction was established, the honest judgment of the directors, under the circumstances, was binding on the Commission, and the cost to the purchaser was the fair basis of capitalization.

331.1—Capitalization for Rate Making Purposes

There are other considerations which call for a reversal of the determination. The Commission should have taken into consideration, in valuing the property, its earning power at reasonable rates. The power of the Public Service Commission to fix reasonable rates involves the right to increase as well as to lower rates. The rates are to be reasonable to the public and reasonable to the corporation.

City of Troy v. United Traction Co.....	134 App. Div. 756
.....	119 N. Y. Suppl. 474
People ex rel. D. & H. Co. v. Pub. Ser. Comm.....	140 App. Div. 839
.....	125 N. Y. Suppl. 1000
People ex rel. Bridge Operating Co. v. P. S. Com.....	153 App. Div. 129
.....	138 N. Y. Suppl. 434
Home Telephone & Telegraph Co. v. City of Los Angeles.....	211, U. S. 265
.....	29 Sup. Ct. 50
.....	53 L. Ed. 176
Murray v. Pocatello.....	226 U. S. 318
.....	33 Sup. Ct. 107
.....	57 L. Ed.

315.1—Going Value

The Commission entirely overlooked the physical position of this railroad property with reference to the city of New York, which is growing rapidly toward the territory served, and the rapidly increasing traffic in the territory, and that the conditions existing at the sale which influenced the bidding are permanent; that the lines of the company connect with the lines owned by other important railway companies to which it is valuable as a feeder, which

companies were both active competitors for the property on the sale, and naturally would be competitors upon any future sale. The bidding did not result from the mere whim or fancy or bad judgment of the bidders, but arose from permanent conditions which made the property valuable.

32—Appreciation

It was proper to deduct from the estimated reproductive cost proper depreciation resulting from age and use; also, if age and use in any way appreciated the value of the property, that should have been considered.

31—Valuation

The fact that the property was bought as a going concern evidently saved some engineering expenses, interest, and much delay. A settled roadbed, perhaps, is more valuable than one recently graded. The purchase price at public sale is very satisfactory evidence of the value of property, but is not always conclusive. It is evident in this case that in one sense the bidding proceeded upon a false basis. . . . The property was found to be \$233,873.86 less valuable than it appeared to be at the time of the bidding. In no other respect can the judgment of the directors of the New Haven Company or the Westchester Company in making the purchase be questioned. **But we hold that under all the circumstances the purchaser was entitled to stock for the cost of the purchase.** . . .

221.1—Issue of Stocks and Bonds

The other decision is that of the NEW YORK PUBLIC SERVICE COMMISSION (1st D.) in the matter of the application of the TWENTY-THIRD STREET RAILWAY COMPANY to mortgage all of its property and franchises for \$1,500,000 and issue \$1,500,000 of bonds thereunder (Vol. 4, p. 283, May 27, 1913). The Commission, because of the peculiar facts of the case, granted the above application on condition that an amortization fund be accumulated so that the obligations of the company be reduced in a comparatively short time from \$2,500,000 to \$1,400,000. The purpose of the issue is to refund to the extent of \$1,500,000 an obligation claimed to have been incurred in changing the motive power of the company's street surface railroad from horse to cable in 1894.

The decision contains a full outline of previous action in such cases, and is for that reason important.

253—COMMISSION REPORTS OF DECISIONS

SIXTH ANNUAL REPORT OF THE RAILROAD COMMISSION OF OREGON TO THE GOVERNOR, December 15, 1912. 220 pages.

This report deals entirely with common carriers, and is of only general interest to electric light companies.

268—PUBLIC SERVICE LAWS

WATERPOWER ACT, WISCONSIN, CHAPTER 755, LAWS OF 1913.

This is an amendment of Chapter 652, Laws of 1911, and gives the Railroad Commission jurisdiction over waterpower companies. The Commission is given power over the improvement of the navigation of navigable waters, and the construction, maintenance, and operation of dams, etc.; is authorized to inspect regularly all dams and works, charging a certain annual fee therefor and to survey the navigable waters of the state; and is given full power over the creation of waterpower companies.

226.5—STANDARDS OF SERVICE

IN RE STANDARDS FOR GAS AND ELECTRIC SERVICE IN THE STATE OF WISCONSIN. Opinion and Decision of the Wisconsin Railroad Commission Revising Rules and Regulations Relative to the Standards of Gas and Electric Service to Supersede the Rules Established on July 24, 1908, August 9, 1913, Vol. 12, W. R. C. Reports, p. 1.

Without materially changing the standards themselves, the revised rules define somewhat differently the practices required of the utilities in maintaining those standards. In the opinion of the Commission the elements which go to make up adequate service, received consideration and emphasis in the original rules; but it was deemed advisable to lay more emphasis on some of these elements and to consider every feature covered by the rules with the idea of making all necessary or desirable revisions. The order follows a public hearing given by the Commission at Milwaukee on April 22, 1913.

In the rules for gas service the chief changes have been made in meter testing and the maintenance of meter test records. Periodic tests, including overhauling, are required for each gas meter, once in four years, instead of three years as has been the custom; and at least two consecutive test runs which agree within 0.5 per cent must be made. The original standards of heating value of gas are to be retained, but the utilities are required to determine such value on at least three days of each week instead of periodically as specified before. The minimum gas pressure at the consumer's outlet has been revised to 2 inches of water pressure instead of 1.5 inch. The rule requiring the utilities to submit monthly summaries of complaints is abandoned but such records must still be kept.

As regards electric service, several modifications are made in the rules, the Commission formulating their rules with the idea of not laying unnecessary stress upon any one element to the neglect of others; nor requiring a standard of service so high that it will necessitate unreasonable rates or interfere with the natural development of the industry.

The principal modifications are as follows:

The rule which limits the error of any meter to 4 per cent on light load, half load or full load is changed to include any load between one-tenth and full load.

Meters operating at low power factor are to be tested at approximately the minimum power factor under which they will be required to operate.

The rule providing for the testing of each meter at least once a year is abandoned and meters requiring periodic tests must now be tested according to the following schedule:

"Single-phase induction-type meters having current capacities not exceeding 50 amp. shall be tested at least once every two years and as much oftener as the results obtain shall warrant.

"All single-phase induction-type meters having current capacities exceeding 50 amp. and all polyphase and commutator-type meters having voltage ratings not exceeding 250 volts and current capacities not exceeding 50 amp. shall be tested at least once every year.

"All other watt-hour meters shall be tested at least once every six months."

Each electric utility is required to own suitable working standards for the testing of meters and these standards must be correct within 0.5 per cent or proper corrections applied.

The old rule covering pressure variation is left intact in so far as it applies to utilities operating in cities of less than 1500 population. In cities of over 1500, utilities must now adopt a standard voltage for the entire constant potential system and maintain such voltages within 3 per cent of the standard on all lighting circuits during lighting hours; on motor circuits and during other than lighting hours the voltage shall be maintained within 10% of the standard. The Commission reserves the right to add to these standards, rules covering maximum demand indication, which has assumed such great importance the past few years, and such other matters as may appear necessary, and to make such modifications and exemptions as may in its judgment be just and reasonable. Two months is deemed sufficient time within which to comply with the modified standards.

COURT DECISIONS

NEW JERSEY

2—Public Service Regulation

PUBLIC SERVICE GAS CO. *v.* NEW JERSEY BOARD OF PUBLIC UTILITIES COMMISSIONERS, et al. On Writ of Certiorari by the Cities of Paterson and Passaic and the Public Service Gas Company to Review an Order of the Board of Public Utility Commissioners Fixing a Gas Rate. Decision of the SUPREME COURT OF NEW JERSEY, Dismissing the Writs as to the Cities, and Affirming the Order. 87 Atlantic 651. July 7, 1913.

This is an appeal from the decision of the Commission (abstracted in 2 RATE RESEARCH 233) determining the Company's previous rates (\$1.10 per 1,000 cu. ft. of gas, with a discount of 10 cents for prompt payment) to be unjust and unreasonable, and fixing a charge of 90 cents per thousand for the Passaic Division on and after February 1, 1913.

The Board found the total value to be \$4,750,000 as against the company's valuation of \$8,909,401. This action is to test the validity of the Board's order. The cities claim that the rates are too high, and the company that the rates are too low. The following paragraphs contain the essentials of the decision:

244—Rehearing and Appeal

The cities have obviously mistaken their remedy, since the only effect of a judgment in certiorari is to set aside an existing order, and if the order is set aside the old rate for gas would remain unaltered. Although, therefore, all the parties except the public service commissioners unite in asking that the order be set aside, we ought not to do so when it is manifest that that situation results from a mere mistake in procedure on the part of the cities. . . .

The only remedy that could give the cities the relief they seek is a writ of mandamus commanding the commission to reduce the rate below 90 cents. . . .

224—Rates

To determine then whether the commissioners had jurisdiction, we must first determine whether the existing rate was unjust and unreasonable. . . .

22—General Powers of Commission

In these cases there is a presumption in favor of the action of the inferior tribunal, because in each case that tribunal is acting in a judicial capacity, and may fairly be supposed to preserve a judicial attitude. The same rule has been sometimes applied in rate cases, but with less reason.

The presumption in favor of the acts of a judicial or quasi tribunal does not apply with the same force to a legislative tribunal, nor to a tribunal which possesses not only to some extent the powers of a court, but also to some extent the powers of a public prosecutor. A legislative body prescribing a rule for future conduct is not limited by the same considerations of justice as a tribunal required to do justice in accordance with existing rules; and one in the position of a public prosecutor can hardly be supposed to preserve a judicial frame of mind; he is rather in the position of one who is judge in his own cause. Under the Public Utilities Act, the commissioners are given extensive powers of legislation, and are given the power of initiating proceedings themselves. . . . If there is

any presumption in favor of the order of the commissioners, it depends like the opinion of the court of another state upon the strength of the reasoning by which it is reported.

6—Rate Differentials

The first question is whether it was just and reasonable for the commissioners to segregate the Passaic district from the rest of the territory supplied by the Public Service Gas Company, and fix a rate based upon the property of the company and its earnings in that district alone. . . .

The segregation of the territory would be reasonable if it were such as a reasonable man, having in view the economical and efficient manufacture and distribution of gas, would adopt. It would be just if it was based upon reason and the local situation, and was not merely arbitrary. . . .

The district is densely populated, and the different municipalities have with the increasing population been growing into one another. Substantially all the commissioners have done is to adopt as a unit a district which had long been treated as such by the owners. As far as appears the district was large enough to secure the advantage of large scale production, and compact enough to secure economical distribution. We think the action of the commissioners in this respect was within the limits of their discretion, and was just and reasonable. . . .

4—Rate Theory

The next question is whether the rate fixed was just and reasonable. On the one hand a just and reasonable rate can never exceed, perhaps can rarely equal, the value of the service to the consumer. On the other hand it can never be made by compulsion of public authority so low as to amount to confiscation. A just and reasonable rate must certainly fall somewhere between these two extremes, so as to allow both sides to profit by the conduct of the business, and the improvements of methods and increase of efficiency. Justice to the consumer, ordinarily, would require a rate somewhat less than the full value of the service to him; and justice to the company would, ordinarily, require a rate above the point at which it would become confiscatory. To induce the investment and continuance of capital there must be some hope of gain commensurate with that realizable in other business; the mere assurance that the investment will not be confiscated would not suffice.

224—Rates

We have to do only with the question submitted to our judgment by the Legislature, and expressed in the language of the statute authorizing the commissioners to fix just and reasonable individual

rates. The word "individual" is important. It connotes more than a mere distinction between the rates of one corporation and the joint rates mentioned immediately thereafter. . .

The statute relates to all public utility corporations, and the expression "individual rates" must be equally applicable to all. As applied to gas companies, the words can hardly be meant to point a distinction from joint rates; for a joint rate by gas companies must be a rare occurrence; in the actual situation in this state in 1911 almost inconceivable. We think the Legislature must have had in mind the rate to the individual consumer.

4—Rate Theory

The principle must be, when reasonableness comes in question, not what profit it may be reasonable for a company to make, but what it is reasonable to charge to the person who is charged. . .

92—Economy and Efficiency

One of the difficulties in rate cases is to allow properly for a return justly due to superior skill. If rates were to be adjudged just and reasonable in accordance with the net returns upon the whole investment, the skillful, prudent, economical manager would have no advantage over his least skillful and most imprudent rival. The fruits of his skill would be seized for the benefit of the public. . .

4—Rate Theory

Like so many other questions in the law that involve a reasonableness of conduct, it [a just and reasonable individual rate] is a question of fact to be settled by the good sense of the tribunal it may come before. . . The real test of the justice and reasonableness of an individual rate seems to be that it should be as low as possible and yet sufficient to induce the investment of capital in the business, and its continuance therein. . .

(The concluding paragraphs of this case, including the rulings on going value and franchises will be given in RATE RESEARCH for October 1.)

REFERENCES

RATES

62—Factors Effecting Rates.

PROFITABLE AND UNPROFITABLE LOADS, by A. G. RAKESTRAW, *Electrical Engineering*, 11¼ pages, September, 1913, p. 408.

This article points out that commercial experts now recognize that the volume of overhead or undivided expenses in a central station business should be made as small as possible, since the effect of undivided charges always attracts unprofitable, and repels profitable business. This is evident, for if a certain expense which is necessary in order to supply A, for instance, be equally divided

between A and B, then since A is being served at less than he should equitably pay, he is a relatively unprofitable customer. Also for that very reason others of the same class will be attracted. Every item that can be apportioned among customers with reasonable exactness and without undue complications of method, should be so distributed. Any load which involves a large fixed and undistributed expense, or which has a large investment in proportion to the revenue, may be suspected of being unprofitable. If, under a proper distribution of the costs, the business will not come to the central station, it is better not to have it, because if taken on otherwise, it will serve only as a burden to the more profitable business.

INVESTMENT AND RETURN

222—Accounts

THE ACCOUNTING OF PUBLIC UTILITIES, by H. C. ROBSON, Public Utilities Commissioner for Manitoba.

This address delivered before the eleventh annual meeting of the Dominion Association of Chartered Accountants, September 2nd to 4th, 1913, defines Public Utilities as "undertakings instituted to serve the public in such matters as transportation of either passengers or freight; the means of communication by telegraph or telephone; the production and furnishing of water, gas, heat, light or power." The point is emphasized that no matter whether public or privately owned or operated, these indispensable adjuncts to modern life are, generally speaking, subject to the same control and regulation. The jurisdiction of the commissions enables them to control rates, to exact extended or improved service, and to decide questions on all matters, one of the most important of which is the imposing of a system of accounting and periodical reports of financial results. A variety of reasons for such accounting are cited, one of the important considerations being the protection and profit resulting to the thrifty and honest corporations, which can exhibit at any moment their financial burdens and gains to meet attacks made with only apparent justification. Installation of a system of standard accounts has been necessarily a somewhat difficult task, especially in the case of municipal plants where other accounts are often merged. The system of accounting adopted by the Commissions in the United States as a result of investigations and brought up to date in the various States, is largely the result of the combined judgment of engineers and accountants, and is a common law derived from the sense of truth and right of those most qualified to declare it.

313—Prices.

PRICE CHANGES AND THE BUSINESS OUTLOOK. *Engineering News*, 1½ page, September 4, 1913, p. 153.

PUBLIC SERVICE REGULATION

268—Public Service Laws

ILLINOIS PUBLIC UTILITY COMMISSION LAW AND MUNICIPAL OWNERSHIP LAW, with complete marginal notes and annotations by WILLIAM J. NORTON, formerly First Assistant Secretary of the Public Service Commission for the First District, State of New York. Secretary of the Rate Research Committee of the National Electric Light Association.

This book includes the original laws printed in large type on one side of the page, opposite pages blank for notes, with sources of the laws and all important

decisions of the courts and commissions thereon. There is an unusually complete Index Digest, giving powers and duties of commission, duties of the utilities and municipalities, etc., with references to section and line numbers; and an alphabetical index. It is the first of a series of annotated and indexed public service commission laws, and may be obtained through the Rate Research Committee, 120 W. Adams St., Chicago. Bound in cloth, 200 pages, price \$2.00 net, postpaid. Specimen sheets will be furnished upon application.

2—Public Service Regulation.

COMMISSION CONTROL OF PUBLIC UTILITIES by JOHN H. ROEMER. Presented at Association Island, September 4, 1913, article and editorial. *Electrical World*, 3 pages, September 13, 1913, p. 531 and page 509.

This article points out ways by which the Railroad Commission of Wisconsin has brought about better franchise conditions, improved service and scientific rates in the public utilities of the State. A careful and moderate discussion of the modern practice of regulation is given under the following headings: ① Changes in the Arts, ② The Indeterminate Permit, ③ Valuation of Plants, ④ Classifications of Accounts, ⑤ Municipal Plant Accounting, ⑥ Regulation of Service, ⑦ Action on Rates, and ⑧ Rate of Return. The experience of the Commission after five years of administration of the Wisconsin law indicates that a comprehensive system of regulation is not only advantageous to the general interests of the public but is of benefit as well to the business interests of the utilities. Those intrusted with the work of investigation and study of the various subjects outlined above must have scientific knowledge in the respective branches or departments of utility management and operation. With a competent staff of experts in the different lines of service, engaged constantly in examining plants throughout the State, it is possible for the regulating board to bring to the solution of every problem arising a breadth of vision and experience that is invaluable both to the public and to the utility. The editorial under the title, "The Regulation Idea in Wisconsin," points out that the Wisconsin Commissioners have been well selected resulting in an even balance of the commission; that this policy, if copied by other states, would cause issues between the public and the utilities to be less acute than they are now. The Wisconsin Commission has not pleased all the utilities or all the public but it has tried to produce results that would remove contentions between the two interests from the arena of politics.

MUNICIPALITIES

84—Public or Municipal Operation.

THE MORAL OF STATE RAILWAYS IN ITALY. Editorial, *The Engineer (London)*, 1 page, August 29, 1913, p. 227.

This article states that the eight years of government operation in Italy, though carried out under the administration of a man of exceptional qualities and powers aided by a staff of unusual ability and technical skill, and though showing remarkable progress, still exemplifies the necessarily accompanying evils of public ownership. There is a brief outline of the conditions in Italy, previous to the nationalization of the railroads; of the evils which are plainly evident—that is, waste, lack of maintenance of the rolling stock, and the parliamentary troubles which have followed on the creation of a vast army of government officials, who are a "state within a state." The statement is made that "the financial side of an enterprise of this sort must be, and will be always, overshadowed by the spectre of waste"; that as regards the national aspect, such an enterprise means only the complication of the railway problem, "the addition of a creaking wheel to the already over-cumbersome machine of parliamentary administration."

83—Public or Municipal Ownership

THE CONTROL OF MUNICIPAL UTILITY RATES, Editorial, *Engineering News*, 1/2 page, September 4, 1913, p. 457.

This refers to the fact that the Pennsylvania public service law, while giving the regulating Commission broad powers over public utilities, excepts from Commission jurisdiction utilities owned by municipalities, the supervision of the latter being practically confined to requiring uniform systems of accounting and the maintenance of ample depreciation reserve. Oftentimes, the need of Commission regulation of municipal utilities is more pronounced than in the case of private corporate services. One important cause for this is the constant restraint upon managers of privately owned utilities due to the fact that they are spending their own money and taking good care to preserve their investment and earnings. Since all the capital of the municipal utilities is borrowed, municipal managers are not subject to this restraint. The statement is made that Wisconsin is practically the only state in which the legislators have had the courage to impose the same burden on all utilities alike and to ride the storm which the seekers of political privilege might raise; but the light of the Wisconsin results is not to be hid under a bushel, and it is only a question of time before the other States come to see the wisdom of such action.

GENERAL

91—Promotion and Growth of the Business.

FINANCIAL NEEDS OF THE ELECTRICAL INDUSTRY, by FRANK A. VANDERLIP. Presented before the Meeting at Association Island, September 5, 1913. *Electrical World*, article and editorial, 4 pages, September 13, 1913, page 534 and page 510.

This article is a significant statement and original analysis of recent growth of the electrical industry; and a discussion of future capital requirements, resulting from this growth, and the present status of electrical securities before the investing public. Eight million dollars a week of fresh capital it is stated can profitably be used in the development of the electrical industry in the United States during the next five years, if such an estimate is based on a comparison of present day statistics with those of five or ten years ago. A consideration of what is certain to be done in the way of electrification of steam railway terminals and heavy mountain grades; of the larger use of electricity for industrial power, in agriculture, and in the continual growth of necessary interurban lines, shows very strikingly how actual is the requirement for \$400,000,000 a year of new capital. There is a discussion of growth and capitalization under such headings as, "Capital Needs in all Fields," "The Electrical Outlook," "The Investor in Electrical Securities," "Investors Fear Politics," "Meet Proper Public Demands," "Hold to High Standards," "Principles for Holding Companies," "Imagination in the Electrical Industry," "The Reduced Cost of Electric Living," "Electricity in Industries," and "Investors Want Fair Public Treatment." In the mind of the investor, the outlook for fair public treatment of public-service corporations is the most important single factor in directing investment of capital toward or away from the electrical field.

The editorial comments that Mr. Vanderlip, presenting the point of view of the metropolitan banker, was deeply impressed by the totals of electrical investment, was concerned about the problems which bear upon the question of fresh capital needs, and insistent in pointing out the responsibility which rests upon managers so to conduct their operations as to win and hold public regard.

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September 24, 1913

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RATE RESEARCH



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CONTENTS	Page
1—Public Service	403
2—Public Service Regulation—Law and Practice	408
3—Investment and Return	415
4—Rate Theory	427
5—Rate Practice	431
6—Rate Differentials	434
7—Schedules and Service	441
8—Municipalities	445
9—General	447

Rate Research

Vol. 3

CHICAGO, SEPTEMBER 24, 1913

No. 26

CLASSIFIED INDEX

VOLUMES 2 and 3 RATE RESEARCH

1—PUBLIC SERVICE.

	Vol.	Page
Not a Public Utility.....	2,	138
Popular Fallacies in Public Service, by Frederick Strauss.....	2,	372
Public and the Public Service Utility.....	3,	256
Public Quality of a Public Service Corporation.....	3,	144

11—ESTABLISHMENT.

111—Incorporation.

Evil of Special Privilege, by J. Newton Baker.....	3,	350
--	----	-----

111.1—Incorporation Tax.

Chicago, Burlington & Quincy Railroad Co. v. Doyle, Secretary of State, Illinois Supreme Court Decision.....	3,	302
---	----	-----

112—Franchises.

Advertising Franchises in New York City.....	3,	223
Final Report on San Francisco, by Bion J. Arnold.....	3,	124
Franchises, a 43-page Pamphlet issued by the Department on Regulation, of the National Civic Federation.....	2,	202
Franchise Drafted for Metropolitan Street Railway, Kansas City.....	3,	368
How the Chicago and Cleveland Street Railway Settlements are Working Out, by Delos F. Wilcox.....	3,	16
Length of Franchise, by P. S. Arkwright.....	3,	189
Provisions of Indiana Law Concerning.....	3,	13
Report on Legal and Franchise Matters, Charter Amendments, to the Board of Supervisors, San Francisco, Nov. 5, 1912, by Bion J. Arnold	2,	186
Des Moines City Railway Company Case.....	3,	102
Vermontville Farmer's Telephone Case. Michigan Commission Decision.....	2,	69
Worcester Electric Light Company. Massachusetts G. & E. Commission Decision	2,	49

112.5—Rates Prescribed by Ordinance.

114—Eminent Domain.

115—Use of Public Highways.

Boston School Committee. Massachusetts G. & E. Commission Decision.....	2,	49
Edison Electric Illuminating Co., of Williamsport, et al. v. Citizens Electric Co. Pennsylvania Supreme Court Decision.....	2,	39
Legislation Versus Control by Regulation, by J. E. Macdonald.....	2,	122
Madison Gas and Electric Company Case. Wisconsin Commission Decision	2,	284
Vernon, City of, v. Los Angeles Gas and Electric Corporation. Decision of District Court of Appeal, Second District, California.....	2,	32

12—PROTECTION OF THE PUBLIC.

Vol. Page

Edison Electric Illuminating Company of Boston. Massachusetts G. & E. Commission Decision.....	2, 48
Midway Gas Company, Application of. California Commission Decision.....	3, 70
Oro Electric Corporation Case. California Commission Decision.....	3, 227
Worcester Electric Light Company. Massachusetts G. & E. Commission Decision	2, 48

121—Proper Service.

Cincinnati M. & L. Traction Co., Complaint against. Ohio Commission Decision	3, 153
--	--------

122—Just and Reasonable Charges.

Basis of Rate Making (Rate Reasonableness), a 43 page pamphlet, issued by the Department of Regulation, of the National Civic Federation ..	2, 127
Basis of Rate Making (Rate Reasonableness), a 43 page pamphlet, issued by the Department of Regulation, of the National Civic Federation, Tabulation of References to.....	2, 148
Delaware & Atlantic Telegraph & Telephone Company, Complaints against. New Jersey Commission Decision.....	2, 395
Detroit & Mackinac R. R. v. Michigan Railroad Commission. Decision of Federal Court, Western District of Michigan.....	3, 281
Erickson, Commissioner Halford. "The Regulation of Public Utilities in Wisconsin"	3, 11
Reasonable Gas Rates and Their Determination, by C. L. Cory.....	2, 74

129—Default in Public Service.

129.1—Discrimination.

Discrimination in Rates and Service, a 149 page pamphlet, issued by the Department on Regulation of Utilities, of the National Civic Federation	2, 327
Peoples Telephone Company v. Lewis. Wisconsin Supreme Court Decision	2, 184

129.2—Inadequate Facilities.

129.3—Refusal of Service.

13—PROTECTION OF THE CORPORATION.

Old Colony Trust Co. v. City of Omaha, Nebr. United States Supreme Court Decision	3, 331
Rules of Practice for the Courts of Equity of the United States, promulgated by the Supreme Court of the United States.....	2, 172

131—Protection from Confiscation.

Chicago, Peoria and St. Louis Railway Company v. Attorney General of Illinois. Decision of Federal Court.....	2, 213
Des Moines Gas Case.....	2, 6, 171
Detroit and Mackinac Railroad Company v. Michigan Railroad Commission et al. Decision of Federal Court, Western District of Michigan	3, 280
Pernicious "Full Crew Bills".....	3, 124
Western Railroad of Alabama, and Central of Georgia Railroad Company, vs. Railroad Commission of Alabama, et al. Decision of District Court Alabama	2, 70

132—Protection from Competition.

Vol. Page

Buzzard's Bay Electric Company. Massachusetts Commission Decision.	3,	24
Cheap Electricity for All, a 15 page pamphlet issued by the Conservation Commission of the State of New York.	2,	58
"Cheap Electricity for All," a 28 page pamphlet, issued by the Municipal Ownership Publishing Company, 17 East 38th Street, New York.	2,	324
Clinton Gas Light Co. Massachusetts G. & E. Commission Decision.	2,	64
Collingswood v. State Water Supply Commission. New Jersey Supreme Court Decision	3,	180
Compilation of Expressions by Authorities on	2,	196, 207
Consumers Gas Company of Millville, Application of. New Jersey Commission Decision	3,	171, 172
Crawford Electric Company v. Knox County Power Company. Maine Supreme Court Decision.	3,	181
Eastern Telephone and Telegraph Company, Application of. New Jersey Commission Decision	3,	275
Georgia Commission, 40th Report of the.	3,	346
Interstate Light and Power Company, Application of. Wisconsin Commission Decision	2,	91
Kentucky Electric Co. v. Louisville Lighting Co.	2,	214
Long Acre Electric Light and Power Company Case. Dissenting Opinion of Commissioner Milo R. Maltbie.	3,	35
Macon Railway and Light Company and The Georgia Public Service Company, General Order Concerning, by Georgia Commission.	3,	40
Madera (California) Waterworks v. City of Madera et al. United States Supreme Court Decision	3,	163
Milwaukee Electric Fares Case. Wisconsin Commission Decision.	2,	175, 176
New York Edison Company, Appellant, v. William P. Willcox, New York Commission (1st D.). Decision of the New York Court of Appeals.	2,	260
Northern Power Company, Potsdam, N. Y., Application of. New York Commission (2d D.) Decision.	3,	71
Oswego River Power Transmission Company of Syracuse, N. Y. New York Commission (2d D.) Decision.	2,	257
Oro Electric Corporation, Application of. California Commission Decision	3,	227, 229
President Wilson on.	2,	291
Rate Wars Against Public Policy.	2,	324
Red Hook Light and Power Company, Application of. New York Commission (2d D.) Decision.	2,	344
Superior Wisconsin Rate Case. Wisconsin Commission Decision.	2,	135
Vermontville Farmers' Independent Telephone Company, Application of. Michigan Commission Decision.	2,	69
Worcester Electric Light Company. Massachusetts G. & E. Commission Decision	2,	63

132.1—Natural Monopolies.

Oro Electric Corporation, Application of. California Commission Decision	3,	228
Vail, Theo. N., on Regulation of Public Utilities.	3,	378

132.2—Fair Rates and Efficient Service.

Oro Electric Corporation, Application of. California Commission Decision	3,	228
--	----	-----

132.8—Unnecessary Duplication.

Eastern Tel. & Tel. Co., Application of. New Jersey Commission Decision	3,	276
Fitchburg Gas & El. Light Co. Massachusetts G. & E. Commission Decision	2,	50
Vail, Theo. N., on Regulation of Public Utilities.	3,	379

132.9—Development Duplication.

Vol. Page

Oro Electric Corporation, Application of. California Commission Decision	3, 230
--	--------

138—Contracts.

Denver Union Water Company Case. United States Supreme Court Decision	3, 278
Elements of the Law Relating to Contracts, by R. Moot.....	3, 285
Gathright (Louisville) v. H. M. Byllesby Co. Decision of Kentucky Court of Appeals	3, 280
Independent Owners' Garage Co. v. Hirsch. New York Supreme Court Decision	3, 348
Old Colony Trust Co. v. City of Omaha, Nebr. United States Supreme Court Decision	3, 332
Right of Maryland Commission to Annul a Contract.....	3, 366

139—Limitations to Service.

Chicago, Burlington & Quincy R. R. v. Oglesby. Decision of District Court, W. D. Missouri.....	2, 71
Cincinnati, Milford and Loveland Traction Company, Complaint v.—Ohio Commission Decision	3, 153
Farmer v. Mayor and City Council of Nashville (Municipal Plant). Tennessee Supreme Court Decision.....	3, 181
Frankel Brothers v. New York Edison Company. New York Commission (1st D.) Decision	3, 182, 259, 262
Thomas J. Murphy v. Coast Gas Company, Belmar. New Jersey Commission Decision	2, 117
Reiser v. Edison Electric Illuminating Co. of Brooklyn. Decision of Supreme Court, Appellate Term.....	2, 32
Southern California Mountain Water Company. Complaint v.—California Commission Decision	3, 40
United States Light and Heat Company v. Niagara Falls Gas and Electric Company. New York Commission (2d D.) Decision.....	2, 48

14—RELATIONS OF CORPORATIONS WITH EACH OTHER.

Continental Securities Company v. Interborough Rapid Transit Company. Decision of the United States District Court, New York....	3, 182
Haverhill Gas Light Company, Attorney General v.—Decision of the Massachusetts Supreme Judicial Court.....	3, 347
Union Trust and Savings Bank of East St. Louis et al. v. Kinloch Long Distance Telephone Co. of Missouri. Illinois Supreme Court Decision	3, 300

141—Reorganization.

Meridian Light and Railway Company et al. v. Catar. Mississippi Supreme Court Decision	2, 368
--	--------

142—Reincorporation.

Provisions of Indiana Law Concerning.....	3, 13
---	-------

143—Co-operation.

Co-operation With the Isolated Plant.....	3, 272
Van Wert Public Service Company, and the Delphos Electric Light and Power Company, Joint Application of. Ohio P. S. C. Decision.....	2, 351

144—Mergers.

Vol. Page

Central Station Consolidation.....	2, 220
Coast Valleys Gas and Electric Company, Application of. California Commission Decision	2, 194
Consolidated Gas Company of New York, Application of. New York Commission (1st D.) Decision.....	3, 262
Discussion on "The Relation of Central Station Generation to Railway Electrification," by Samuel Insull. American Institute of Electrical Engineers	2, 204
Elsinore Electric Light and Power Company and Southern Sierras Power Company, Application of. California Commission Decision.....	3, 186
Kentucky Electric Company, Louisville, Ky. Court Decision.....	2, 172
Provisions of District of Columbia Law Concerning.....	3, 284
Rules Governing Applications for Approval of Mergers Under Chapter 19, of the Laws of 1913. Promulgated by the New Jersey Board of Public Utility Commissioners.....	3, 67
San Francisco, Suit by, to Set Aside the Sale of the Home Telephone Company to the Pacific Telephone and Telegraph Company. California Supreme Court Decision.....	2, 185
Simplicity in Consolidation.....	3, 62

145—Dissolution of Mergers.

California Ruling on Union Pacific-Southern Pacific Unmerging, by John M. Eshleman	2, 402
--	--------

148—Competition.

Consolidated Gas Co. of New York, Application of. New York Commission (1st D.) Decision	3, 264
Frankel Bros. v. New York Edison. New York Commission (1st D.) Decision	3, 260

149—Holding Companies.

Consolidated Gas Co. of New York, Application of. New York Commission (1st D.) Decision	3, 264
Monmouth Lighting Company, Application of. New Jersey Commission Decision	3, 246
Provisions of Massachusetts Law Concerning.....	3, 365
Public Service Gas Company, Application of. New Jersey Commission Decision	3, 248
Regulation, by H. M. Byllesby.....	3, 384
Syndicate Interests in Central Stations.....	3, 384

149.1—Stock Ownership.

Frankel Bros. v. New York Edison. New York Commission (1st D.) Decision	3, 262
---	--------

19—GENERAL HISTORY OF ELECTRIC UTILITIES.

Historical Review of the Keokuk Hydroelectric Development, by William Logan	3, 384
---	--------

199—General History of Utilities.

Lighting Developments During the Nineteenth Century, by Roscoe Scott	2, 14
Manufacture of Water Gas, by E. C. Jones.....	3, 224
Natural Gas Service, by Samuel S. Wyer.....	3, 288
Public Supply of Electric Power, by G. L. Addenbrooke.....	3, 95
Sayings and Writings About the Railways.....	3, 384
Statistics for the Manufacture of Gas. Bulletin of the Bureau of the Census, Department of Commerce.....	3, 192
The Story of Gas, by George B. Cortelyou.....	2, 155
Thirty Years of Central-Station Service in New York City.....	2, 29

2—PUBLIC SERVICE REGULATION—LAW AND PRACTICE.

	Vol. Page
Are Public Service Commissions Worth While.....	2, 138
Classification of Inventory for Water Utilities and the Inspection of Water Works Systems by the Wisconsin Railroad Commission.....	3, 382
Commission Control of Public Utilities, by John H. Roemer.....	3, 399
Consumers Gas Company, Application of. New Jersey Commission De- cision	3, 171
Cost of Regulation	2, 74
Education of Public Service Commissioners, Practical Working of the Public Utilities Law, by Commissioner J. H. Hale.....	3, 15
Effect of Utility Regulations Upon the Banks, by H. W. Dreher.....	3, 238
Experiences of a Commissioner; What the Study of Utility Regulation Taught One Regulator, by John B. Olmsted.....	3, 28
Functions of Research in the Regulation of National Monopolies, by Edward B. Rosa	3, 223
Great Problem of Public Utilities Companies, by H. M. Byllesby.....	2, 266
Haverhill Gas Light Co., Rate Case, Massachusetts Commission De- cision	2, 338
How Are You Going to Get It? by Calvert Townley.....	3, 16
Legislation Affecting Public Utilities, by H. V. Bozell.....	3, 223
Massachusetts—Acts and Resolves Passed by the Legislature During the Session of 1913	3, 365
Messages and Recommendations of the Governors on Public Utilities.....	2, 252
Messages of the Governors as Relating to Public Utilities.....	2, 300
Model Utility Legislation, and Meeting of the National Civic Federa- tion	2, 322
National Civic Federation, Department on Regulation of Public Utili- ties. Announcement	2, 171
Prejudice Against Utility Commissions.....	3, 238
Proposed New York Citizens' Committee to Safeguard Appointments to Public Service Commissions	2, 218
Public Service and the Public. Address by Commissioner Milo R. Malt- bie	2, 172
Public Service Commissions, an Address by D. L. Gaskill.....	2, 107
Public Service Commissions—Investors and the Public.....	3, 191
Public Service Gas Company v. New Jersey Board of Public Utility Com- missioners. New Jersey Sup. Ct. Decision.....	3, 394
Public Service Regulation in the Various States—a list of the regula- tory bodies	2, 223
Public Service Regulation in the Various States—States having neither railroad nor public utility commissions.....	2, 259
Regulation of Public Utility Corporations by Commission.....	3, 159
Regulation of Public Utilities in Wisconsin, by Commissioner Halford Erickson	3, 190
Regulation, Valuation and Depreciation of Public Utilities, by Samuel S. Wyer	2, 401
Report on Utility Regulation, by Emerson Macmillan.....	2, 354
Rights and Duties of Public Service Corporations, by Hon. J. B. Whit- field	3, 287
Some Dangers of Public Service Commission Control, by George A. Lee.....	3, 190
State Regulation of Public Utilities, by Morris Knowles.....	2, 43
State Regulation of Public Utilities, by Morris Knowles. Discussion of.....	2, 235
Tendency of the Times, A Review of Public Utility Conditions of the United States, by J. H. Pardee.....	2, 267
Two Epochs of Rate Regulation, by William J. Norton.....	3, 335
Two Public Utility Commissions for Ohio.....	2, 267
Unqualified Commissioner and Commission Appointments in New York.....	3, 271
Vail, Theo. N., on Regulation of Public Utilities.....	3, 378
World-Wide Commission Regulation.....	3, 28

21—ORGANIZATION OF COMMISSIONS.

Vol. Page

Organization of Railroad and Public Utilities, a 46 page pamphlet, issued by the Department on Regulation of the National Civic Federation..2, 56

211—Qualifications of Commissioners.

Personnel of Public Service Commissions by Geo. L. Myers.....3, 368
Provisions of the Indiana Law Concerning.....3, 12
Why Engineers Should be Appointed as Members of the Illinois Public Service Commission3, 287

211.9—Removal of Commissioners.

Vermont Commission Reorganization.....3, 352

212—Officers.

Provisions of the Indiana Law Concerning.....3, 12

213—Employees.

214—Expenses of Commissions.

22—GENERAL POWERS OF COMMISSIONS.

Brooklyn Heights R. R. Co. v. N. Y. Commission (1st D.). New York Supreme Court Decision3, 363
Commissions in Danger.....3, 125
Conflict of Public Service Commissions.....3, 336
Frontier and Western Railroad Company v. N. Y. Commission (2nd D.). New York Supreme Court Decision.....3, 44
General Powers of Commission, a 55 page pamphlet issued by the Department on Regulation, of the National Civic Federation.....2, 351
Labor Disputes and the Regulating Commission.....3, 143
New York Public Service Commission. Jurisdiction of Baggage and Transfer Companies3, 85
New York Railways Company v. New York Public Service Commission (1st. D.).....3, 59
Omaha and Council Bluffs Street Railway Case. United States Supreme Court Decision3, 347
Provisions of the Indiana Law Concerning.....3, 12, 13
Public Service Gas Company v. New Jersey P. U. C. New Jersey Supreme Court Decision.....3, 395
Sabre et al. v. Rutland Railroad Company et al. Vermont Supreme Court Decision2, 385
Vermont. Matter of the Constitutionality of Act Granting Public Service Commission Jurisdiction of Municipal Charters. Opinion of the Supreme Court of Vermont.....3, 103

221—Capitalization.

221.1—Issue of Stocks and Bonds.

Central California Gas Company, Application of. California Commission Decision3, 58
Fall River (Massachusetts) Gas Works Company v. Board of Gas and Electric Light Commissioners. Massachusetts Supreme Court Decision3, 251
Georgia Commission, 40th Report of.....3, 345
Interstate Telephone and Telegraph Company v. New Jersey Public Utilities Commission. New Jersey Supreme Court Decision.....3, 104
Northern Michigan Power Company, Application of. Michigan Commission Decision3, 327, 328
Provisions of the Indiana Law Concerning.....3, 13

221.1—Issue of Stocks and Bonds—Continued.	Vol. Page
Regulation of Stock and Bond Issues, a 58 page pamphlet, issued by the Department on Regulation, of the National Civic Federation...	2, 204
San Diego Consolidated Gas and Electric Company, Application of. California Commission Decision.....	3, 185
Twenty-third Street Railway (New York), Application of. N. Y. Commission (1st D.) Decision.....	3, 392
Westchester Street Railway Company v. New York Commission (2nd D.). N. Y. Sup. Ct. Decision.....	3, 390, 391
222—Accounts.	
Accounting of Public Utilities, by H. C. Robson.....	3, 398
Accounting Under Utility Regulation, by John A. Britton.....	3, 62
Accounting Versus Statistics, by Milan V. Ayres.....	3, 110
Brief History of Telephone Accounting, by Charles G. Dubois.....	3, 109
Importance of Uniform Accounts and Statistics, by Halford Erickson...	3, 334
List of Uniform Systems of Accounts Formulated by Companies, Associations, and State Commissions. Compiled by the Library of the New York Public Service Commission (1st D.).....	3, 124
Provisions of District of Columbia Law Concerning.....	3, 283
Report of the Committee on Uniform Accounting, N. E. L. A. E. J. Bowers, Chairman	3, 175
Some Necessities of Accounting and of Standard and Uniform Accounting in the Smaller Public Utility Plant, as Worked Out by a Small Plant Man	3, 158
Wisconsin Commission Policy in Valuation.....	3, 381
222.1—Form of Accounts.	
New Jersey—Uniform Accounts.....	2, 98, 186
Rules and Regulations for Uniform Accounts. Oklahoma Commission, 4th Annual Report.....	2, 119
Texas and Pacific Railway Company et al. v. Railroad Commission of Texas et al. Texas Supreme Court Decision.....	2, 212
Uniform Classifications of Accounts for Electrical Corporations, for Gas Corporations and for Water Corporations, Prescribed by the California Railroad Commission	3, 95
222.2—Audit of Accounts.	
222.3—Method of Keeping Accounts.	
Kansas City Southern Ry. Co. v. United States (Interstate Commerce Commission Intervener). United States Commerce Court Decision...	3, 301
Lincoln Telephone and Telegraph Co. (Neb.) re Rates. Nebraska Commission Decision	3, 316
223—Reports to Commissions.	
Indiana, re Questions Asked by Commission.....	3, 235
New York Commission (1st D.). Order for Filing.....	3, 159
224—Rates.	
Cleveland Rate Arbitration.....	3, 208
Commonwealth Edison Rate Inquiry, by Charles B. Willard and Arthur C. King	3, 303
Decision of the Board of Arbitration in the Cleveland Case.....	3, 224
Establishment and Changes of Rates, a 154 page pamphlet, issued by the Department on Regulation, of the National Civic Federation...	2, 250
Letter in Behalf of the Commonwealth Edison Company, to the Committee on Gas, Oil and Electric Light of the City Council, Chicago, Concerning the Report of the City Electrician and City Comptroller, on the Company's Rates for Supplying Electricity, by Isham, Lincoln and Beale, Counsel for the Company.....	3, 333

224—Rates—Continued.

Vol. Page

New York Public Service Commission. Arrangement with the Newton Gas Company of Queens, for a Reduction in Rates.....	3,	83
Provisions of Indiana Law Concerning.....	3,	12
Public Service Gas Company v. New Jersey Commission. New Jersey Sup. Ct. Decision	3,	395, 396
Railroad Rates and Regulation, by William Z. Ripley.....	2,	299
Report of Ray Palmer, City Electrician of Chicago, to the City Council, with Reference to Regulation of the Rates of the Commonwealth Edison Company	3,	118
Rulings from the 24th and 25th Annual Reports of Massachusetts G. & E. Commission, for Years 1908-1909.....	2,	48

224.2—Contracts.

225—Schedules.

225.1—Filing of Schedules.

Oklahoma Corporation Commission. Fourth Annual Report.....	2,	119
Summary of the Status of the Filing of Schedules by Electrical Companies in the Different States.....	2,	294

226—Service.

Regulation of Service, a 69 page pamphlet, and Regulation of Inter-corporate Relations, a 17 page pamphlet, issued by the Department on Regulation, of the National Civic Federation.....	2,	299
---	----	-----

226.1—Improvement of Service.

226.2—Extension of Service.

226.3—Joint Service.

Eastern Telephone & Telegraph Co., Application of. New Jersey Commission Decision	3,	276
Tehama County Telephone Company and Glenn County Telephone Company v. the Pacific Telephone and Telegraph Company. California Commission Decision	3,	23

226.5—Standards of Service.

Standards of Service	3,	382
Wisconsin—Standards for Gas and Electric Service. Aug. 9, 1913.....	3,	393

227—Valuation.

California Railroad Commission, Decision of, in the Matter of Ascertain- ing the Value of the Property of the Electric Railroad Corporations. Within the State of California. Oct. 17, 1912.....	2,	118, 122
Comparative Study of the Four Principal Methods of Appraising the Value of Public Utilities.....	2,	43
Essential Points Governing the Financial Value of an Engineering Prop- erty, by Schuyler R. Schaff.....	2,	187
Ethical and Economic Elements in Public Service Valuation, by James E. Allison	2,	203
Need of Valuation of Public Utility Company Properties, by Harold Almert	3,	381
New Jersey Gas Decisions.....	2,	252
Railway Valuation Act, and a Huge Piece of Engineering Work.....	2,	388
Railroad Valuation, Reproduction Cost New as a Sole Basis for Rates..	2,	268
Rate Fixing and Appraisal, by Professor C. L. Cory.....	2,	123

227—Valuation—Continued

Vol. Page

Report of the Committee on Railroad Taxes, and Plans for Ascertaining Fair Valuation of Railroad Property, of the National Association of Railway Commissioners	2, 139, 187,	235
Two Conflicting Theories of Valuation of Public Service Companies, by Halbert P. Gillette	2,	187
Valuation Methods and Plans Analyzed, Report of the Committee on Railroad Taxes, and Plans for Ascertaining Fair Valuation of Railroad Property, of the National Association of Railway Commissioners	2,	235
Valuation of Land for Rate Making Purposes.....	2,	185
Valuation of Public Service Properties, by L. R. Nash.....	2,	185
Valuation of Public Utilities, by Commissioner Halford Erickson.....	2,	107
Views on Railway Valuation, Abstract of Discussion by the National Association of Railway Commissioners, 1912 Convention, Washington, D. C.	2,	400

228—Franchises.

Bellevue Borough et al. v. Manufacturers' Light and Heat Co. Pennsylvania Supreme Court Decision.....	3,	84
Denver et al., Petitioners, v. New York Trust Company, Denver Union Water Company et al. United States Supreme Court Decision....	3,	277
Detroit United Railway Company, Plaintiff in Error, v. City of Detroit. United States Supreme Court Decision.....	3,	278
Federal Water-Power Policy, by M. O. Leighton.....	2,	188
Franchises, by James V. Oxtoby.....	3,	286
Gathright et al. v. H. M. Byllesby & Co. et al. Decision of Kentucky Court of Appeals.....	3,	279
Moline v. Moline Drilling and Development Co. Kansas Supreme Court Decision	3,	300
Newark Terminal Report	3,	318
New York Subway Contracts, by Delos F. Wicox.....	3,	286
Old Colony Trust Company, Appellant, v. City of Omaha. United States Supreme Court Decision	3,	331
Omaha Gas Franchise Controversy.....	3,	318
Perth Amboy, City of, v. Public Service Railway Company. New Jersey Commission Decision	3,	234
Supreme Court Decision Affecting Franchise Rights. Denver (Colo.) Union Water Company	3,	190
Wisconsin Indeterminate Permit Law, by James D. Mortimer.....	3,	334

228.1—Approval of Franchises.

Consumers' Gas Co., Application of. New Jersey Commission Decision..	3,	171
Frankel Bros. v. New York Edison Co. New York Commission (1st D.) Decision	3,	262
Southern Sierras Power Company, Application of. California Commission Decision	3,	213

23—COMPLAINTS.

Provisions of Indiana Law Concerning.....	3,	13
---	----	----

231—Companies' Procedure.

Improving Company Practice Before Commissions.....	2,	202
--	----	-----

24—COMMISSION PROCEDURE.

Maryland Public Service Commission. Order re Information to Chief Engineer	3,	69
Methods of Procedure Under the Wisconsin Utility Laws—Benefits and Restrictions of the Law. C. B. Salmon.....	2,	74

241—Investigations.

Vol. Page

Railroads of New England, Complaints Against. Decision of the Interstate Commerce Commission3, 277

242—Hearings.

242.1—Testimony.

242.2—Depositions.

242.3—Subpoenas and Witnesses.

242.4—Experts.

Boston Edison Engages English Expert.....2, 387
Concerning Expert Testimony by Engineers.....2, 139
Engineer as Expert Witness.....2, 43
Functions of a Technical Staff in Public Utility Regulation, by W. D. Pence2, 402
German Code of Fees.....2, 203

243—Orders.

243.1—Preliminary.

243.2—Final.

243.3—After Rehearing.

243.4—Staying of Orders.

243.5—Enforcement.

Public Service Commission (New York 2d D.) et al. v. Westchester Street Railroad Company. Decision of the Court of Appeals of New York2, 184
Oklahoma Railway Company v. State. Oklahoma Supreme Court Decision3, 43
Public Service Gas Co. v. N. J. P. U. C. New Jersey Supreme Court Decision3, 395

243.6—Penalties.

244—Rehearings and Appeal.

Thompson v. Railroad Commission of Louisiana. Decision of Federal District Court of Louisiana.....2, 119

25—COMMISSION RECORDS.

251—Publicity.

252—Commission Annual Reports.

Connecticut—First Annual Report, for the Year Ending June 30, 1912...3, 85
Georgia—Fortieth Report of the Railroad Commission, for the Year Ending December 31, 1912.....3, 345
Interstate Commerce Commission, Twenty-sixth Annual Report, Dec. 16, 19123, 172
Maryland—Annual Report for the Year 1912.....3, 68
Massachusetts.
24th & 25th Annual Reports, 1908-09.....2, 48, 56
25th Annual Report, ref. to.....2, 71
26th & 27th Annual Reports, 1910-11.....2, 63, 68
Nebraska—Fifth Annual Report for the Year Ending November 30, 1912...3, 267

252—Commission Annual Reports—Continued	Vol. Page
New Jersey—Third Annual Report for the Year Ending December 31, 1912	2, 296
New Mexico—First Annual Report.	
January 16, 1912, to December 31, 1912.....	3, 220
New York (1st D.).	
1910, Volume 4, 1911, Volume 1.....	2, 98
1911, Volume 2	3, 144
New York (2d D.).	
Vol. 1, Vol. 2.....	2, 98
Sixth Annual Report for the Year Ending Dec. 31, 1912.....	2, 283
North Carolina—Thirteenth Annual Report for the Year Ending December 31, 1912	2, 84
Oklahoma—Fourth Annual Report for the Year Ending June 30, 1911.....	2, 119

253—Commission Reports of Decisions.

Wisconsin.

Vol. 5, Mar. 28, 1910, to Nov. 11, 1910.....	2, 40, 72
Vol. 6, November 11, 1910, to June 14, 1911.....	2, 84, 100
Vol. 7, June 15, 1911, to September 23, 1911. Vol. 8, September 27, 1911, to March 12, 1912.....	3, 198
Kansas—First Report May 22, 1911, to November 30, 1912.....	2, 399
Michigan Railroad Commission. Orders and Opinions from April 1, 1913, to June 30, 1913	3, 327
New York (1st D.).	
Vol. 2, September 1, 1909, to January 1, 1912.....	3, 59
Vol. 3, January 1, 1912, to January 1, 1913.....	3, 156
New York (1st D.).	
Volume 4, pages 203-324, for the Month of May, 1913.....	3, 266
Oregon Railroad Commission. Sixth Annual Report.....	3, 392

26—HISTORY AND DEVELOPMENT OF REGULATION.

Empire State Gas and Electric Association. Announcement Regarding Weekly Notice Cards of Bills Pending, Commission Orders, etc....	2, 235
--	--------

261—Public Service Bills.

Illinois Utilities Bills Passed.....	3, 220
Maine Public Utilities Commission.....	3, 28
Pennsylvania Utilities Bill	3, 220, 271
Public Utility Commissions Bills, Now Before the People of Colorado, by Virtue of the Initiative and Referendum, a Paper by Daniel L. Webb	2, 31
Suggests Public Service Commission for Washington, D. C.....	2, 252

265—Co-operation of Public Service Companies with Regulatory Bodies.

Government Regulation, by Samuel O. Dunn.....	2, 203
Vail, Theo. N., on Regulation of Public Utilities.....	3, 378, 382

268—Public Service Laws.

District of Columbia Law.....	3, 11, 282
Idaho Law	3, 11, 125, 191
Illinois Law	3, 239, 268
Illinois—Public Utility Commission Law and Municipal Ownership Law, with Complete Marginal Notes and Annotations, by William J. Norton	3, 398
Indiana Law	3, 12, 75, 386
Maine Law	3, 125, 271, 304, 351
Massachusetts Public Service Commission Law.....	3, 222

268—Public Service Laws—Continued

Vol. Page

Massachusetts, New Legislation of Especial Interest to Gas and Electric Light Companies, and Municipalities Owning Lighting Plants.....	2, 218
Massachusetts Special Report of Commission Suggesting Consolidation of Public Service Laws.....	2, 295; 3, 319
Missouri Law	3, 11
Model Public Utility Law.....	2, 399
Model Public Utility Law, Proposed Sections for.....	2, 283
Ohio Law	3, 352
Oklahoma Law	3, 74
Oregon Law	2, 122
Pennsylvania Law	3, 304, 336, 382
West Virginia Law	3, 11
Wisconsin Waterpower Act	3, 393

269—Comparison of Public Service Laws.

3—INVESTMENT & RETURN.

Argument of Frank Bergen for Public Service Gas Company Before the Board of Public Utility Commissioners of the State of New Jersey, in the Hearing as to the Rates of the Company for Gas in the Passaic Division	2, 91
Attleboro Gas Light Company Corporation Rates Case. Massachusetts Gas and Electric Commission Decision	3, 36
Baltimore Rate Decision	2, 323
Brief, by Miller, Mack & Fairchild, Attorneys for the Milwaukee Gas Light Company, in the Complaint Before the Wisconsin Railroad Commission, Alleging Excessive Rates for Gas.....	3, 255
Brief by Olin, Butler & Curkeet, and S. L. Kingan, Attorneys for the Tucson (Arizona) Gas, Electric Light and Power Company. Rates Case	2, 355
Brief by Vernon Cook, W. Calvin Chesnut and Charles Markell, Counsel, Representing the Consolidated Gas, Electric Light and Power Company of Baltimore, in the Complaint as to the Reasonableness of Gas and Electric Rates	2, 122
Brief of Albert W. Ritchie, Peoples' Advocate, Representing the Complainants in Baltimore Rates Case	2, 122
Briefs by Charles F. Mathewson, of Counsel for Westchester Lighting Company (Tarrytown, Irvington, etc., New York), in the Complaints Before the Public Service Commission (N. Y. 2d D.) as to the Reasonableness of Gas and Electric Rates.....	2, 267
Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 115, 131, 136, 140
Buffalo v. Cataract Power and Conduit Company Rates Case. New York Commission (2d D.) Decision	3, 149, 168
Cataract Power and Conduit Company to Appeal.....	3, 187
Columbus Wisconsin Municipal Water Works and Electric Light Plant Rates Case. Wisconsin Commission Decision.....	2, 392
Consolidated Gas, Electric Light and Power Company of Baltimore Rates Case. Maryland Commission Decision.....	2, 262, 266
Consolidated Rate Case (Baltimore)	2, 298
Decision in the Milwaukee Fare Case.....	2, 298
Decision of the Wisconsin Courts Against the Milwaukee Company....	3, 206
Delaware and Atlantic Telegraph and Telephone Company Rates Case. New Jersey Commission Decision	2, 394
Element of Risk	2, 127
Ely, City of, v. Ely Light and Power Company Rates Case. Nevada Public Service Commission Decision	3, 218

3—INVESTMENT & RETURN—Continued

Vol. Page

Garden City (Kansas) Telephone, Light and Manufacturing Company v. The City of Garden City. Rates Case. Kansas Commission Decision	2, 393
Growing Prestige of Public Service Bonds.....	3, 237
Haverhill Gas Light Company Rates Case. Massachusetts Gas and Electric Commission Decision	2, 333, 337, 338
Housatonic Power Company, New Haven, Complaint v., Connecticut Commission Decision	3, 216
Investment Ratio and Operating Ratio, by Renzo Norsa.....	3, 221
Kansas Natural Gas Company, Complaint v. Kansas Commission Decision	3, 57
Kings County Lighting Co. v. Wilcox et al., Public Service Commission (1st D.) New York. Rates Case. New York Supreme Court Decision	3, 164
Lincoln Traction Company, Complaint v., Nebraska Commission Decision	3, 267
Livermore Water and Power Company, Application of. California Commission Decision	3, 214
Los Angeles Gas and Electric Corporation, Application of. California Commission Decision	3, 201
Malden Electric Company Rates Case. Massachusetts Gas and Electric Commission Decision	2, 115
Milwaukee Fare Case. Decision of Circuit Court of Wisconsin.....	2, 58
Milwaukee Gas Light Company Rates Case. Wisconsin Commission Decision	2, 355
Minnesota Railroad and Warehouse Commission v. Great Northern Railroad, Northern Pacific Railroad. United States Supreme Court Decision	3, 179
Minnesota Rate	3, 237
Minnesota Rate Cases. United States Supreme Court Decision....	3, 195, 266
Montreal Telephone Rates Case. Decision of the Board of Railway Commissioners of Canada	2, 322
Municipal Electricity Loans. J. Horace Bowden and Fred Tait.....	2, 58
New York Commercial, Public Utilities Section.....	3, 28
Pacific Gas & Electric Company, Application of. California Commission Decision	3, 214
Palo Alto Gas Company Rates Case. California Commission Decision..	3, 147
Parsons Railway and Light Company Rates Case. Kansas Commission Decision	2, 348
Peoples Water, Light and Power Co. (Mellen, Wisconsin) Rates Case. Wisconsin Commission Decision	3, 205
Profits of a Great Manufacturing Company Contrasted with Those of Railways	3, 206
Public and Public Service Corporations, by F. K. Blue.....	2, 185
Public Service Gas Company Rates Case. New Jersey Commission Decision	2, 233
Public Service Gas Company Rate Case, by Frank Bergen.....	2, 252
Queensborough Gas and Electric Company, Rates Case. New York Commission (1st D.) Decision	3, 51
Railway Rate Theories of the Interstate Commerce Commission, by M. B. Hammond	2, 112
Raritan Township v. Public Service Electric Corporation Rates Case. New Jersey Commission Decision	2, 398
Rate Fixing and Appraisal: Automatically Directed Method of Rate Fixing and Price Control, by F. K. Blue.....	2, 185
Relative Earnings of Securities, Statement Issued by Henry L. Doherty and Company	3, 93
Relative Security of Securities, Statement Issued by Henry L. Doherty & Co., 60 Wall St., New York City.....	3, 29

3—INVESTMENT & RETURN—Continued

Vol. Page

Report by City Electrician to City Council of Chicago on Commonwealth Edison Rates	3, 118
Rhineland Rates Case. Wisconsin Commission Decision	2, 153
San Diego Water Company Rates Case. California Commission Decision	3, 183
Summary of Revenues and Expenses of the Steam Roads of the United States for the Month of February, 1913. Bulletin No. 47. Prepared by the Bureau of Railway Economics, of Railway Companies of the United States, Washington, D. C.	3, 110
Summary of Revenues and Expenses of Steam Roads in the United States, for the Month of September, 1912. Bulletin No. 41. Prepared by Bureau of Railway Economics, of Railway Companies of the United States, Washington, D. C.	2, 187
Superior v. The Superior Water, Light and Power Company. Wisconsin Commission Decision	2, 129
Toledo Railways and Light Co. Rates Case. Ohio Commission Decision	3, 206
Water Company of Tonopah, Nevada Rates Case. Nevada Commission Decision	3, 101
Wright, Arthur, "Cost of Electricity Supply"	2, 380

31—VALUATION.

Appleton Water Works Co. v. Wis. R. R. Commission. Wisconsin Supreme Court Decision	3, 307
Appraisal of Water Works Properties, by Douglas A. Graham	3, 47
Can Engineers Be Trusted to Arbitrate Fairly and Intelligently Between the Public Interests and the Property Interests?	3, 187
Chicago Telephone Report	2, 87
Coming Problem of Valuation	3, 176
Consolidated Gas, Electric Light & Power Company of Baltimore. Complaint v.—Maryland Commission Decision	2, 263
Decision of the Supreme Court as to Railway Land Values	3, 254
Description of an Inventory and Valuation of a Gas and Electric Plant, by H. W. Crozier	3, 110
Ely Light & Power Company, Complaint v.—Nevada Commission Decision	3, 219
Haverhill Gas Light Company Rates Case. Massachusetts Gas & Electric Commission Decision	2, 335
Kansas Railway Valuation; Report of the Work of the Engineering Department of the Public Utilities Commission from Date of Establishment to November 1, 1912, by C. C. Witt	3, 158
LaFollette's Objections to Placing Engineers in Charge of Railway Appraisals	3, 303
Lincoln Telephone and Telegraph Company, Application of. Nebraska Commission Decision	3, 313, 340
Marshall v. Kansas Natural Gas Co. Kansas Commission Decision	3, 57
Mathematics of Valuation	3, 188
Minnesota Rate Cases. United States Supreme Court Decision	3, 195
Minnesota Rate Cases Decision as Relating to Appraisal and to Rate Making	3, 318
National Appraisal, by Clifford Thorn	3, 207
National Telephone Company, Limited (England) v. His Majesty's Postmaster General. Judgment of the Court of Railway and Canal Commission, Royal Courts of Justice	3, 72
Parsons, Kans., Rates Case. Kansas Commission Decision	2, 348
Physical Valuation of Electric Railway Properties, by Charles L. Henry	3, 142
Physical Valuation of Railroads	3, 77
Provisions of District of Columbia Law Concerning	3, 283
Railroad Valuation Board Named by Interstate Commerce Commission	3, 94
Railway Valuation Board of the Interstate Commerce Commission	3, 125

31—VALUATION—Continued

Vol. Page

Report of Ray Palmer to the City Council of Chicago re Commonwealth Edison Rates	3, 119,	120
Report on Street Railway System of Kansas City, Mo., by Bion J. Arnold	3,	78
San Diego Water Co., Application of. California Commission Decision	3,	184
Stockton Terminal and Eastern Railroad Company, Valuation of. California Commission Decision	3,	215
Superior Rates Case. Wisconsin Commission Decision	2,	129
True Value of Public-Utility Property as it Affects Public Welfare	3,	368
Valuation of Public Service Corporations, by Robert H. Whitten, Reviewed by William J. Norton	3,	124
Valuation of the Several Classes of Property of Common Carriers, Report of the Committee on Interstate Commerce of the United States Senate	3,	222
Vermontville Telephone Case. Michigan Commission Decision	2,	69
Value of a Small Water Power Privilege	3,	255
Value of Valuation	3,	29, 62
Values in the City of St. Louis, Editorial, and Report on United Railways of St. Louis, by James E. Allison	2,	350
Westchester St. Ry. Co. v. N. Y. P. S. C. (2d D.) Stock and Bond Issue. New York Supreme Court Decision	3,	392
Who Will Represent the Public, by D. F. Jurgensen	3,	207
Willets, California, Rates Case. California Commission Decision	2,	290

311—Basis of Valuation.

Buffalo v. Cataract Power and Conduit Co. New York Commission (2d D.) Decision	3,	151, 168
Central Station Statistics and Accounting, by Hermann Spoehrer	2,	219
Consolidated Gas, Electric Light & Power Company of Baltimore, Complaint v., Maryland Commission Decision	2,	265
Delaware & Atlantic Telegraph & Telephone Co., Complaints v., New Jersey Commission Decision	2,	395, 397, 398
Depreciation as Affecting the Value of Tangible Property Devoted to Public Use, Memorandum for Company, John J. Crennan, Attorney for Westchester Lighting Company, Louis L. G. Benedict of Counsel, in the Complaints Before the Public Service Commission (N. Y. 2d D.)	2,	400
England National Telephone Co. Valuation Case	3,	73
Haverhill Gas Light Co. Rates Case. Mass. G. & E. Commission Decision	2,	334
Palo Alto Gas Co. Complaint v., California Commission Decision	3,	148
Provisions of Indiana Law Concerning	3,	12
Westchester Street Railway Co. v., New York Public Service Commission (2d D.). New York Supreme Court Decision	3,	390

311.1—Original Cost.

Buffalo v. Cataract Power & Conduit Co. New York Commission (2d D.) Decision	3,	169
Stockton Terminal and Eastern Railroad Co., Valuation of. California Commission Decision	3,	216

311.2—Reproduction Cost New.

Appleton Water Works Company v. Wisconsin Railroad Commission. Wisconsin Supreme Court Decision	3,	310
Buffalo v. Buffalo General Electric Co. New York Commission (2d D.) Decision	3,	115
Buffalo v. Cataract Power & Conduit Co. New York Commission (2d D.) Decision	3,	151

311.2—Reproduction Cost New—Continued

Vol. Page

Des Moines Gas Case. Decision of the District Court of the United States, Southern District of Iowa.....	2, 7, 8
Kings County Lighting Company, Complaint v., New York Commission (1st D.) Decision	3, 166, 167
Stockton Terminal and Eastern Railroad Company, Valuation of. California Commission Decision	3, 216

311.3—Present Value.

Appleton Water Works Company v. Wisconsin Railroad Commission. Wisconsin Supreme Court Decision	3, 309, 311
Des Moines Gas Case. Decision of the District Court of the United States, Southern District of Iowa.....	2, 7
Stockton Terminal and Eastern Railroad Company, Valuation of. California Commission Decision	3, 216

311.4—Market Value.

Buffalo v. Cataract Power & Conduit Co. New York Commission (2d D.) Decision	3, 169
--	--------

311.5—Cost Plus Cost of Additions and Extensions.

Provisions of District of Columbia Law Concerning.....	3, 283
Westchester Street Railway Company v. New York Public Service Commission (2d D.). New York Supreme Court Decision.....	3, 390

312—Physical Inventory.

England, National Telephone Co., Valuation Case.....	3, 72
Improved Inventory System, by E. I. Titlow.....	3, 303
Lincoln Telephone & Telegraph Co., Application of. Nebraska Commission Decision	3, 315

312.9—Paving Over Mains.

Appleton Water Works Company v. Wisconsin Railroad Commission. Wisconsin Supreme Court Decision.....	3, 309
Kings County Lighting Co., Complaint v., New York Commission (1st D.) Decision	3, 165, 166

313—Prices.

Copper Production and Price Statistics for the Period 1907-1912, by John B. C. Kershaw	3, 125
Cost of Northern White Cedar Poles, and Butt-Treatment of Same....	3, 63
Cost of Pole-Line Construction. Abstract of a Paper Read by S. B. Hood	2, 43
Cost of Power, by Seth A. Moulton.....	2, 108
Economics of Power Transmission Lines, by Alfred Still.....	2, 124, 219
Lincoln Telephone & Telegraph Co., Application of. Nebraska Commission Decision	3, 314
Maps Published by the United States Government, for Sale by the Superintendent of Documents, Washington, D. C.....	3, 222
Petroleum Industry in 1912, Abstract of Article by David T. Day, of the United States Geological Survey.....	2, 298
Price Changes and the Business Outlook.....	2, 31, 107, 172, 340, 387
	3, 48, 93, 188, 238, 334, 398
Prices of Engineering Materials, A Review and a Prophecy.....	2, 252
Roads and Streets	3, 29

314—Overhead Charges.

	Vol. Page
Chicago Telephone Report	2, 87
Construction Expenses in the Minnesota Rate Decision.....	3, 207
Delaware & Atlantic Telegraph & Telephone Co. Rate Case. New Jersey Commission Decision	2, 396
England National Telephone Co. Valuation Case.....	3, 72, 73
Haverhill Gas Light Co. Rate Case. Massachusetts Gas & Electric Commission Decision	2, 335
Jefferson Municipal Electric Light & Water Plant. Wisconsin Commission Decision	2, 40
Milwaukee Fare Case. Wisconsin Commission Decision.....	2, 58, 59
Palo Alto Gas Company Rates Case. California Commission Decision..	3, 147
Queensborough Gas & Electric Co. (N. Y.) Rates Case. New York Commission (1st D.) Decision	3, 53
Regulation of Public Utilities in Wisconsin, by Commissioner Halford Erickson	3, 9
Right of Way Multiples in California, by Walter Melvin Wells.....	3, 351
Should Depreciation Apply? Treatment and Allocation of the Item for General Expenditures and Contingencies, by E. C. Hurd	3, 350
Superior Rates Case. Wisconsin Commission Decision.....	2, 131

314.1—Promotion.

Northern Michigan Power Co., Application of. Michigan Commission Decision	3, 327
---	--------

314.11—Initial Engineering.**314.12—Legal Expense.****314.2—Organization.****314.21—Incorporation.**

Milwaukee v. T. M. E. R. & L. Co. Wisconsin Commission Decision....	2, 130
---	--------

314.22—Franchises.

Appleton Water Works Co. v. Wisconsin R. R. Commission. Wisconsin Supreme Court Decision	3, 308
Buffalo General Elec. Co. Rates Case. New York Commission (2d D.) Decision	3, 137
Consolidated Gas, Electric Light & Power Company of Baltimore. Rates Case. Maryland Commission Decision.....	2, 263
Public Service Gas Co. Rates Case. New Jersey Commission Decision..	2, 234
Westchester St. Ry. Co. v. N. Y. P. S. C. (2d D.) New York Supreme Court Decision	3, 390

314.23—Permits.**314.3—Bond Discounts.**

Marinette, City of, v. City Water Co. Wisconsin Commission Decision..	2, 131
Regulation of Public Utilities in Wisconsin, by Commissioner Halford Erickson	3, 9
Superior Rates Case. Wisconsin Commission Decision.....	2, 131

314.4—Construction.**314.41—Engineering.****314.42—Administration.****314.43—Contingencies.**

314.44—Contractor's Profit.	Vol. Page
Queensborough Gas & Electric Co. Rates Case. New York Commission (1st D.) Decision	3, 53
314.45—Sub-contractor's Profit.	
314.46—Piece Meal Construction.	
314.5—Interest During Construction.	
314.6—Taxes and Insurance During Construction.	
Queensborough Gas & Electric Company Rates Case. New York Commission (1st D.) Decision	3, 53
314.7—Early Experimental Work.	
Queensborough Gas & Electric Company Rates Case. New York Commission (1st D.) Decision	3, 54
314.8—Deficit in Early Earnings.	
Buffalo v. Cataract Power & Conduit Co. Rates Case. New York Commission (2d D.) Decision.....	3, 150
Queensborough Gas & Electric Company. Rates Case. New York Commission (1st D.) Decision.....	3, 54
314.9—Special Advertising and Soliciting.	
Rhinelanders Rates Case. Wisconsin Commission Decision.....	2, 153
315—Intangibles.	
Chicago Telephone Report	2, 88
Intangible Values of Electric Light and Power Companies, by William J. Hagenah	2, 155
Intangible Values of Electric Lighting and Power Properties, by William J. Hagenah	2, 14
Intangible Values of Electric Railways and Their Determination from Accounts, by William J. Hagenah	2, 43
Retirement of Intangible Values, by Bion J. Arnold.....	2, 219
Rhinelanders Rates Case. Wisconsin Commission Decision.....	2, 152
315.1—Going Value.	
Appleton Water Works Co. v. Wisconsin Railroad Commission. Wisconsin Supreme Court Decision.....	3, 311, 312
Buffalo v. Cataract Power & Conduit Co. Rates Case. New York Commission (2d D.) Decision	3, 149
Delaware and Atlantic Telegraph & Telephone Co. Rates Case. New Jersey Commission Decision	2, 396
Des Moines Gas Case. Decision of District Court of United States, Southern District of Iowa	2, 8
Going Concern Value	2, 322
Kings County Lighting Co. Rates Case. New York Commission (1st D.) Decision	3, 164
Kings County Lighting Co. v. Public Service Commission of New York (1st D.). New York Supreme Court Decision.....	3, 166
Northern Michigan Power Co., Application of. Michigan Commission Decision	3, 327
Palo Alto Gas Co. Complaint v., California Commission Decision.....	3, 148
Parsons Railway & Light Co. Rates Case. Kansas Commission Decision	2, 349
Proper Recognition for Going Value.....	3, 29
Public Service Gas Co. Rates Case. New Jersey Commission Decision..	2, 233
Queensborough Gas & Elec. Co. Rates Case. New York Commission (1st D.) Decision	3, 55

315.1—Going Value—Continued	Vol, Page
Rate Investigation, Chicago Telephone Company—Notes on Going Value, Prepared by N. T. Guernsey.....	2, 187
Westchester St. Ry. Co. v. N. Y. P. S. C. (2d D.). New York Supreme Court Decision	3, 391
315.2—Good Will.	
Delaware and Atlantic Telegraph and Telephone Co. Rates Case. New Jersey Commission Decision	2, 396
Des Moines Gas Case. Decision of the District Court of the United States, Southern District of Iowa.....	2, 7
Public Service Gas Co. Rates Case. New Jersey Commission Decision..	2, 233
315.3—Special Contracts.	
Palo Alto Gas Co. Rates Case. California Commission Decision.....	3, 147
San Diego Water Co., Application of. California Commission Decision..	3, 183
317—Construction in Advance of Present Needs.	
Lincoln Tel. & Tel. Co., Application of. Nebraska Commission Decision.	3, 315
318—Working Capital.	
Des Moines Gas Case. Decision of the District Court of the United States, Southern District of Iowa	2, 8
Lincoln Tel. & Tel. Co., Application of. Nebraska Commission Decision.	3, 315
Queensborough Gas & Electric Company Rates Case. New York Com- mission (1st D.) Decision	3, 55
319—Land.	
Queensborough Gas & E. Co. Rates Case. New York Commission (1st D.) Decision	3, 51
Superior Rates Case. Wisconsin Commission Decision.....	2, 129, 130
32—APPRECIATION.	
Attleboro Gas Light Co. Corporation Rates Case. Massachusetts Gas & Electric Commission Decision	3, 38
Comparison of Capital Values—Agriculture, Manufactures, and The Railways, Bulletin No. 39 of the Bureau of Railway Economics, Washington, D. C.	2, 156
Edison El. I. Co. of Boston. Mass. G. & E. Commission Decision.....	2, 50
Extracts from Accounting Rules, Court Decisions, and the Writings of Authorities, in Relation to the Capitalization of Replacements. Com- piled by Robert H. Whitten.....	2, 120
Haverhill Gas Light Co. Rates Case. Mass. Gas & Electric Commission Decision	2, 335
Kings County Lighting Co. Rates Case. New York Commission (1st D.) Decision	3, 165
Kings County Lighting Co. v. New York Public Service Commission (1st D.) New York Supreme Court Decision.....	3, 166
Queensborough Gas & Electric Co. Rates Case. New York Commission (1st D.) Decision.....	3, 52
Westchester St. Railway Co. v. New York Public Service Commission. New York Supreme Court Decision.....	3, 392
33—CAPITALIZATION.	
Are American Railroads Over Capitalized? by Alba B. Johnson.....	3, 335
Financing a Gas Company, by O. B. Lansinger.....	3, 367
Provisions of District of Columbia Law Concerning.....	3, 283
Queensborough Gas & Electric Company Rates Case. New York Com- mission (1st D.) Decision.....	3, 52

331—Amount of Investment.

Vol. Page

Buffalo v. Buffalo General Electric Co. New York Commission (2nd D.) Decision	3, 137
Delaware & Atlantic Telegraph & Telephone Co. Rates Case. New Jersey Commission Decision	2, 396
Supplemental Brief by Albert C. Ritchie, People's Advocate, filed with the Maryland Public Service Commission, in the complaint as to the reasonableness of gas and electric rates, of the Consolidated Gas, Electric Light and Power Company of Baltimore.....	2, 186

331.1—For Rate Making Purposes.

Beverly Gas & Electric Co. Massachusetts Gas & Electric Commission Decision	2, 64
Buffalo v. Cataract Power & Conduit Co. New York Commission (1st D.) Decision	3, 170
Gathright (Louisville) v. H. M. Byllesby Co. Decision of Kentucky Court of Appeals	3, 280
Public Service Gas Co. Rates Case. New Jersey Commission Decision ..	2, 234
Westchester St. Ry. Co. v. N. Y. P. S. C. (2nd D.) New York Supreme Court Decision	3, 391

331.2—Total Capitalization.

Consolidated Gas, Electric Light & Power Company of Baltimore. Rates Case. Maryland Commission Decision.....	2, 263
--	--------

331.3—Market Value of Stocks & Bonds.

Consolidated Gas, Electric Light & Power Company of Baltimore. Rates Case. Maryland Commission Decision.....	2, 265
Haverhill Gas Light Company Rates Case. Massachusetts Gas and Electric Commission Decision.....	2, 334

331.4—Original Book Cost.

Buffalo v. Buffalo General Electric Co. New York Commission (2nd D.) Decision	3, 116
---	--------

331.5—Net Earnings Rule.

Appleton Water Works Co. v. Wisconsin Railroad Commission. Wisconsin Supreme Court Decision.....	3, 312
Provisions of District of Columbia Law Concerning.....	3, 283

332—Notes and Other Issues for Less than One Year.

335—Issue of Stocks & Bonds.

Central California Gas Company, Application of. California Commission Decision	2, 195
Half Moon Bay Light and Power Company, Application of. California Commission Decision	3, 40
Is It Economic to Issue Bonds for Public Improvements if the Life of the Improvement is Less than the Life of the Bond?.....	2, 123
Kings County Electric Light and Power Company, Application of. New York Commission (1st D.) Decision.....	2, 297
Long Acre Electric Light & Power Co. Case. New York Commission (1st D.) Decision	2, 386
New York Railways Company, Application of. New York Commission (1st D.) Decision	2, 90
Ohio Traction Company, Application of. Ohio Commission Decision....	2, 31
Riverside Traction Company, Trenton, Application of. New Jersey Commission Decision	2, 123
Should We "Pay as We Go" for Roads and Other Public Works?.....	3, 207

337—Stocks without Par Value.

34—RATE OF RETURN.

Vol. Page

Attleboro Gas Light Company Corporation Rates Case. Massachusetts Gas and Electric Commission Decision.....	3, 36,	39
Automatic Rate Regulation, Abstract of an Address by Oscar T. Crosby.	2,	59
Brooklyn Borough Gas Company Rates Case. New York Commission (1st D.) Decision	3,	250
Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3,	139
Buffalo v. Cataract Power & Conduit Co. Rates Case. New York Commission (2d D.) Decision	3,	150
Chicago Telephone Report	2,	89
Delaware & Atlantic Telegraph & Telephone Co. Rates Case. New Jersey Commission Decision	2,	398
Des Moines Gas Case. Decision of the District Court of the United States. Southern District of Iowa.....	2,	7
"Fair Rate of Return" for Public Utilities as Affected by "Unearned Increment"	3,	78
Lincoln Telephone & Telegraph Case. Nebraska Commission Decision..	3,	341
Palo Alto Gas Company Rates Case. California Commission Decision..	3,	148
Parsons Rate Case. Kansas Commission Decision.....	2,	349
Public Service Gas Company Rates Case. New Jersey Commission Decision	2,	234
Queensborough Gas & Electric Company Rates Case. New York Commission (1st D.) Decision	3,	54
Reasonable Return, by William H. Winslow.....	3,	78
Report of Ray Palmer, City Electrician of Chicago, on Commonwealth Edison Rates	3,	120
Risk as an Element of the Rate of Return on Capital in Electric Traction Properties, by James D. Mortimer.....	3,	48
Superior Rates Case. Wisconsin Commission Decision.....	2,	133
Vail, Theo. N., on Regulation of Public Utilities.....	3,	378
Vermontville Farmers' Independent Telephone Co., Application of. Michigan Commission Decision	2,	69
Western Railroad of Alabama and Central of Georgia Railroad Company v. Railroad Commission of Alabama. Decision of District Court of Alabama	2,	70
Worcester Street Lighting Case. Massachusetts Gas and Electric Commission Decision	2,	22

341—Bond Interest.

Queensborough Gas & Electric Company Rates Case. New York Commission (1st D.) Decision	3,	54
--	----	----

342—Dividends.

New York Utilities Dividends.....	2,	372
Vail, Theo. N., on Regulation of Public Utilities.....	3,	379

35—TOTAL REVENUE, EXPENSE, INCOME.

Attleboro Gas Light Company Corporation Rates Case. Massachusetts Gas and Electric Commission Decision.....	3,	37
Buffalo v. Buffalo General Electric Company Rates Case. New Jersey Commission (2d D.) Decision	3,	138
Edison Electric Illuminating Co. of Brockton Rates Case. Massachusetts Gas & Electric Commission Decision.....	3,	326

351—Revenue.

Determination of Probable Operating Revenue, by Louis E. Fischer....	3,	367
Estimating Operating Expense and Cost of Construction, by Louis E. Fischer	3,	381

352—Expense.

Vol. Page

Doherty, H. L. "Equitable, Uniform and Competitive Rates".....	3, 372
North Adams Gas Light Company. Massachusetts Gas and Electric Decision	2, 65
Parsons Rates Case. Kansas Commission Decision.....	2, 349

353—Income.

354—Surplus.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 136
Lessons from Flood and Cyclone; Too Many Utilities Operate Under Fair Weather Rates, by W. F. Brashears.....	3, 93
Report of City Electrician of Chicago on Commonwealth Edison Rates..	3, 119

36—DEPRECIATION.

Answer of Chicago Telephone Company to Chicago Telephone Report....	2, 138
Attleboro Gas Light Company Corporation Rates Case. Massachusetts Gas & Electric Commission Decision.....	3, 38
Buffalo v. Cataract Power & Conduit Co. Rates Case. New York Commission (2d D.) Decision	3, 149
Chicago Telephone Report	2, 86
Delaware and Atlantic Telegraph & Telephone Company Rates Case. New Jersey Commission Decision.....	2, 396, 397
Depreciated Values as a Basis for Rate Making; a Review of the Supreme Court Decision (Minnesota Rates Cases) and Some Suggestions as to Estimating Accrued Depreciation.....	3, 270
Depreciation and Public Service Regulation, by Robert H. Whitten.....	3, 111
Depreciation, by George C. Shaad.....	2, 203
Depreciation, by Commissioner Halford Erickson.....	3, 63
Depreciation: Estimated and Actual, by Alex. C. Humphreys.....	3, 351
Depreciation Estimates, by Edwin Gruhl.....	3, 30
England National Telephone Company, Valuation of.....	3, 73, 74
Importance of Providing for Depreciation.....	3, 189
Lincoln Telephone & Telegraph Company. Nebraska Commission Decision	3, 340
Methods of Determining the Life of Public Utilities. An Abstract of a Paper by Halford Erickson	2, 75
Minnesota Rate Cases. United States Supreme Court Decision.....	3, 196
Obsolescence and Depreciation for Locomotives.....	3, 188
Physical Valuation of Public Utilities: Depreciation in Its Relations to Investment, Earnings, and Current Value, by R. S. Hale.....	3, 143
Queensborough Gas & Electric Company Rates Case. New York Commission (1st D.) Decision	3, 55
Report of Ray Palmer, City Electrician of Chicago, on Commonwealth Edison Rates	3, 119
Should Public Service Properties Be Depreciated to Obtain Fair Value in Rate or Regulation Cases, by James E. Allison.....	2, 155
Some Illogical Theories Discussed—The Wrong Use of the Element of Depreciation in Valuations to Control Rates, by R. B. Rifemberick..	3, 286
Study in Depreciation, by Dr. Louis Bell.....	3, 367
Use of Depreciation Data in Rate-Making and Appraisal Problems, by Halbert P. Gillette	2, 91
Vital Distinction Between "Functional Depreciation" and "Natural Depreciation"	3, 319

361.1—Wear and Tear.

361.2—Inadequacy.

361.3—Obsolescence.	Vol. Page
Plymouth Electric Light Company. Massachusetts Gas and Electric Commission Decision	2, 64
Worcester Street Lighting Rates Case. Massachusetts Gas and Electric Commission Decision	2, 22
362—Accrued Depreciation.	
365—Annual Rate of Depreciation.	
Parsons Rates Case. Kansas Commission Decision.....	2, 349
Superior Rates Case. Wisconsin Commission Decision.....	2, 132
Vermontville Farmers' Independent Telephone Company, Application of. Michigan Commission Decision.....	2, 69
365.1—Straight Line Method.	
365.2—Sinking Fund Method.	
366—Depreciation Funds.	
Haverhill Gas Light Company Rates Case. Massachusetts Gas & Electric Commission Decision	2, 337
Palo Alto Gas Company Rates Case. California Commission Decision..	3, 147
369—Depreciation Tables.	
Life of Plant	2, 156
Sanitary District's (Chicago, Ill.) Schedule of Depreciation.....	2, 219
37—PROFIT SHARING.	
371—Sliding Scale of Rates and Dividends.	
Consolidated Gas, Electric Light & Power Company of Baltimore Rates Case. Maryland Commission Decision.....	2, 266
Milwaukee's Low Gas Rate.....	2, 352
Provisions of District of Columbia Law Concerning.....	3, 283
Public Service Commissions, by Mr. Alten S. Miller.....	2, 59
Sliding Scale for Street Railway Dividends Based on Quality of Service. Abstract of a Paper by James W. S. Peters.....	2, 44
372—Employees Profit Sharing.	
Profit Sharing	3, 30
373—City Profit Sharing.	
374—Pensions, Sick Benefits, Etc.	
38—TAXATION.	
Excessive Public Utility Taxes	2, 268
Indiana Union Traction Co. et al. v. Gough et al. Decision of the Appellate Court of Indiana	3, 349
Kansas City, Memphis & Birmingham Railroad Company v. Stiles. Alabama Supreme Court Decision.....	3, 332
Queens County Water Co. v. State Board of Tax Commissioners (City of New York Intervener). New York Supreme Court Decision.....	3, 266
Relation of Taxation to Service Rates, by N. T. Guernsey.....	3, 189
Sanitary District of Chicago v. Gifford, County Treasurer. Illinois Supreme Court Decision	3, 105
Some Reasons for the Increase in Public Debt and the Raising of Tax Rates	3, 304
381—City.	

382—State.	Vol. Page
All Concerns Selling Energy Must Pay Tax as Utilities.....	3, 30

383—City Compensation.

384—Federal Income Tax.

39—GENERAL INVESTMENT AND RETURN INFORMATION.

Cost of Light and a Comparison of Lighting Units, by A. G. Rakestraw.....	2, 75
List of Publications of the Department of Commerce, Available for Dis-	
triction	3, 287
Pending Banking Legislation.....	3, 351
Problem of the Small Electric Light Company, by R. S. Stewart.....	2, 29
Production of Lumber by States and Kinds. Map Prepared by the Office	
of Geography, of the United States Department of Agriculture,	
Forest Service	2, 298
Statistics of the Coal Mining Industry in the United States. Bulletin	
of the Bureau of the Census, Department of Commerce.....	3, 222

391—Reports of Companies.

Franklin County v. Tibbe Electric Co. Missouri Supreme Court De-	
cision	3, 281

395—Proceedings of Technical Associations.

Kansas Gas, Water, Electric Light and Street Railway Association.	
Fifteenth Annual Meeting	2, 75
Proceedings of the First Convention of the Michigan Section, National	
Electric Light Association	2, 204

399—Comparative Financial Statistics.

Edison Electric Illuminating Company of Boston. Massachusetts Gas &	
Electric Commission Decision	2, 50

4—RATE THEORY.

Buffalo v. Buffalo General Electric Company Rates Case. New York	
Commission (2d D.) Decision	3, 116
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 291, 359, 371
Edison Electric Illuminating Company of Brockton Rates Case. Mas-	
sachusetts Gas and Electric Commission Decision.....	3, 323
Malden Street Lighting Rates Case. Massachusetts Gas and Electric	
Commission Decision	2, 115
Practical Application of the Self-Adjusting Standard for Rate-Fixing, by	
F. K. Blue	3, 92
Public Service Gas Company v. New Jersey Public Utilities Commission.	
New Jersey Supreme Court Decision.....	3, 396, 397
Public Service Rates, by William J. Norton.....	3, 141
Railway Rate Theories of the Interstate Commerce Commission, by M.	
B. Hammond	2, 112-114
Railway Transportation, by Charles Lee Raper.....	2, 60
Rate Making. Report of the Committee on Rates to the Natural Gas	
Association of America in Convention at Cleveland, Ohio.....	3, 236
Rates	3, 333
Rates and Rate Making, by John F. Druar.....	3, 349
Theoretical Basis of the Multiple-Rate System, by Hugo E. Eisenmenger.....	3, 140
Wisconsin Railroad Commission, Volume 5 W. R. C., Rulings on Electric	
Rates	2, 40
Worcester Street Lighting Rates Case. Massachusetts Gas and Electric	
Commission Decision	2, 22
Wright, Arthur, "Cost of Electricity Supply".....	2, 361, 381, 382

41—COST OF SERVICE.

	Vol. Page
Analysis of Kilowatt-Hour Costs of Combination System.....	3, 302
Analysis of Motor Service and Heating Costs in a Jewelry Factory....	3, 205
Bases for Railway Rates, Report of the Committee on Rates and Rate Making, of the National Association of Railway Commissioners....	2, 235
Beverly Gas & Electric Company. Massachusetts Gas & Electric Commission Decision	2, 63
Buffalo v. Buffalo General Electric Co. Rates Case. New York Commission (2d D.) Decision	3, 116, 134
Comparative Operating Expenses of Horse, Electric and Gasoline Commercial Vehicles	3, 92
Contrast in Central Station Development.....	3, 121
Cost of Electrical Energy, by R. E. Crompton.....	2, 283
Cost of Hydroelectric Energy.....	3, 284
Cost of Isolated Plant Power, as Generated by Non-Condensing Engines, with Exhaust Steam Used for Heating or Industrial Processes.....	2, 236
Cost of Manufacture in a 2,300-Kilowatt Central Station.....	3, 121
Cost of Manufacturing in Six Medium-Sized Central Stations, by E. F. Lathrop	3, 237
Cost of Power in Central Station, by Henry D. Jackson.....	2, 123
Cost of Power Production in a Representative Central Station, by E. Freeman	3, 25
Cost of Power to Meet Tacoma Bonds, by A. L. Thorn.....	3, 25
Country Side Network, Editorial; and the Production and Distribution of Energy, Address by Samuel Insull, Before the Franklin Institute, Philadelphia	3, 14
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 292
Durand Light & Power Company. Wisconsin Commission Decision.....	2, 100, 101
Economic Value of Gas and Electric Plants, by Dr. Friedrich Greineder.....	3, 175
Edison Electric Illuminating Company of Boston. Massachusetts Gas & Electric Commission Decision	2, 52
Electric Railway Costs, by John B. Sparks.....	3, 204
Elements of Rate-Making, by J. T. Jennings.....	3, 270
Fallacy of Comparative Statistics. Injustice of Trying to Fix Rates of One City by Others	3, 317
Features of Electric Rate Making, by George L. Hoxie.....	3, 26
Haverhill Gas Light Company Rates Case. Massachusetts Gas & Electric Commission Decision	2, 336
Increase in Fare Orders by New Jersey Commission.....	2, 371
Isolated Plant Economy and Electrical Equipment of a Modern Building	2, 271
Jefferson Municipal Electric Light & Water Plant. Wisconsin Commission Decision	2, 41
Leominster Gas Light Co. Massachusetts Gas & Electric Commission Decision	2, 51
Light, Heat and Power Business of Central Stations, by Newton Harrison	3, 270
Light, Heat and Power Primer for the Business Man, by Arthur V. Farr	3, 253
Louisiana Railway and Navigation Company v. Railroad Commission of Louisiana. Louisiana Supreme Court Decision.....	2, 167
Manitowoc Electric Light Company, 1910. Wisconsin Commission Decision	2, 41
New York to Determine Economy of Isolated-Plant and Central Station Service for Municipal Buildings	3, 75
On the Cost of Electric Supply, by John Hopkinson.....	2, 23
Operative Cost of Electrical Wagons in Service of Commonwealth Edison Company	2, 339

41—COST OF SERVICE—Continued

Vol. Page

Paper Presented to the Honorable Mayor, Public Utilities Commission, City Council, and Public of the City of Springfield, Missouri, by the Springfield Gas and Electric Company.....	2,	60
Plymouth Electric Light Company. Massachusetts Gas & Electric Commission Decision	2,	66
Power Economics in a Printing Plant.....	3,	142
Power Plants: Cost of Producing Power Based on Iowa Coals, with a Comparison of Estimated Costs and Costs from Actual Tests; Digest of a Bulletin of the Iowa State College, by H. W. Wagner.....	2,	353
Queensborough Gas and Electric Co. Rates Case. New York Commission (1st D.) Decision	3,	56
Railway Rate Theories of the Interstate Commerce Commission by M. B. Hammond	2,	113, 114
Rate for Electricity, by Henry D. Jackson.....	2,	169
Red Cedar Valley Electric Company. Wisconsin Commission Decision ..	2,	101
Reduction in the Cost of Electric Lighting Abroad.....	2,	188
Report of Committee for Determining the Proper Basis for Rates and Fares. American Electric Railway Association.....	2,	170
Ripon Light & Water Company, Wisconsin Commission Decision ..	2,	41, 42
Saks & Co. v. New York Edison Company Rates Case. New York Commission (1st D.) Decision	3,	155
San Diego Water Company, Application of. California Commission Decision	3,	184
Should the State Fix Rates on the Basis of a Fair Return Upon the Investment, by Albert C. Ritchie.....	2,	219
Southern Gas Counties Company, Application of. California Commission Decision	3,	248
Study Made to Determine Equitable Water Rates for the City of St. Louis, Mo., by Edward E. Wall.....	3,	157
Study of Comparative Up-Keep of Horse Drawn Vehicles and Electric Motor Trucks	3,	75
Suffolk Light, Heat and Power Company, Southampton, L. I. Order re Rates of. New York Commission (2d D.) Decision.....	3,	83
Tests of Efficiency of Motor Trucks with Trailers, Abstract of a Report by Richard T. Dana	2,	353
Ton-Mile Electric Delivery Costs.....	2,	353
Two and a Half Billion Dollar Argument for Central Station Service, by A. E. Richards	3,	204
Vermontville Farmers' Independent Telephone Co., Application of. Michigan Commission Decision	2,	70
What the Rates Charged by Central Stations Must Pay For, by Newton Harrison	3,	75
Whitehall Municipal Electric Plant, Application of. Wisconsin Commission Decision	2,	116
Why Large Power Units Are More Economical Than Small Ones....	3,	186
Worcester Street Lighting Rates Case. Massachusetts Gas & Electric Commission Decision	2,	21
Wright, Arthur, "Cost of Electrical Supply".....	2,	359, 365, 377, 380, 381, 382

411—Apportionment of Expense.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3,	131
Edison Electric Illuminating Company of Boston. Massachusetts Gas & Electric Commission Decision	2,	71
Lincoln Telephone & Telegraph Case. Nebraska Commission Decision ..	3,	341
Madison Gas & Electric Company. Wisconsin Commission Decision ..	2,	72, 73
Rhineland Rates Case. Wisconsin Commission Decision.....	2,	152
Standardization of Method for Determining and Comparing Power Costs in Steam Plants, by H. G. Stott and W. S. Gorsuch.....	3,	122

411—Apportionment of Expense—Continued

Vol. Page

Superior Rates Case. Wisconsin Commission Decision.....	2, 132
Wilets Rates Case. California Commission Decision.....	2, 290
Wright, Arthur. "Cost of Electricity Supply".....	2, 362, 365

411.1—Customer Charges.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 132
Greenwood Municipal Light Plant, 1910. Wisconsin Commission Decision	2, 102
Lancaster Electric Light Company. Wisconsin Commission Decision	2, 101
Wright, Arthur L., "Cost of Electricity Supply".....	2, 375, 377, 379, 380

411.2—Demand Charges.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision.....	3, 117
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 389
Durand Light & Power Co. Wisconsin Commission Decision.....	2, 102
Readiness to Serve Charge Explained	3, 26
Ripon Light & Water Company. Wisconsin Commission Decision.....	2, 41
Wright, Arthur, "Cost of Electricity Supply".....	2, 376

411.3—Energy or Output Charges.

Durand Light and Power Company. Wisconsin Commission Decision	2, 102
Red Cedar Valley Electric Company. Wisconsin Commission Decision	2, 101
Wright, Arthur, "Cost of Electricity Supply".....	2, 362, 375, 376

419—Return for Different Character of Service.

Railway Rate Theories of the Interstate Commerce Commission, by M. B. Hammond	2, 113
Wright, Arthur, "Cost of Electricity Supply".....	2, 360, 381

45—VALUE OF SERVICE THEORY.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 132
Edison Electric Illuminating Company of Boston. Massachusetts Gas & Electric Commission Decision	2, 52, 53
Edison Electric Illuminating Co. of Brockton Rates Case. Massachusetts Gas & Electric Commission Decision.....	3, 324, 325
Fitchburg Gas and Electric Light Co. Massachusetts Gas & Electric Commission Decision	2, 55
Kansas Natural Gas Company, Complaint v. re Rates. Kansas Commission Decision	3, 57
Marblehead Municipal Light Plant, Application of. Massachusetts Gas & Electric Commission Decision	3, 211
New York Central and Hudson River Railroad Company, and the New York, New Haven and Hartford Railroad Company. Reduction of Commutation Fares. New York Commission (2d D.) Decision.....	2, 365
Railway Rate Theories of the Interstate Commerce Commission, by M. B. Hammond	2, 113
San Diego Water Company Rates Case. California Commission Decision	3, 185
Value of Service	3, 350
Wilets Rates Case. California Commission Decision.....	2, 290
Worcester Street Lighting Rates Case. Massachusetts Gas & Electric Commission Decision	2, 22

451—Increment Costs.

49—HISTORY AND DEVELOPMENT OF ELECTRIC RATE THEORY.

5—RATE PRACTICE.

Vol. Page

Justification of a Rate, by D. C. Barnes.....	2, 14
In the Matter of Express Rates, Practices, Accounts and Revenues. Interstate Commerce Commission Opinion.....	2, 32
Doherty, H. L., "Equitable, Uniform & Competitive Rates"....	3, 292, 371
Report of City Electrician to City Council of Chicago re Commonwealth Edison Rates	3, 120, 121
Some Principles and Facts that Should Be Considered in Making Rates for Electrical Utilities, by Commissioner Halford Erickson.....	2, 169
Tariffs for Electrical Energy, with Particular Reference to Domestic Tariffs, by W. W. Lackie	2, 274

51—FORMS OF RATES.

Cost of Manufacturing Electricity, by H. M. Hobart.....	3, 366
Doherty, H. L., "Equitable, Uniform & Competitive Rates".....	3, 294, 355

511—Flat Rates.

Chippewa Valley Railway, Light & Power Company (Eau Claire) Rates Case. Wisconsin Commission Decision	3, 244
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 355
Durand Light and Power Co., Wisconsin Commission Decision.....	2, 102
Flat Rate Campaign at Fall River, Mass.....	2, 352
Flat-Rate Lighting Analyses	2, 321
Flat Rate Problems	3, 60
Flat Rates for Small Customers in Cedar Rapids.....	3, 122
Flat Rates for Tungsten Signs, by George E. Fuller.....	2, 139
Rhineland Rates Case. Wisconsin Commission Decision.....	2, 152
Ripon Light and Water Co. Wisconsin Commission Decision.....	2, 42

512—Consumers' Output Rates.

513—Meter Basis.

Ripon Light and Water Company, Wisconsin Commission Decision.....	2, 42
---	-------

513.1—Straight Line Meter Rate.

Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 356
Edison Electric Illuminating Company of Boston. Massachusetts Gas and Electric Commission Decision.....	2, 53
Edison Electric Illuminating Company of Brockton Rates Case. Massa- chusetts Gas and Electric Commission Decision.....	3, 325
Red Cedar Valley Electric Company. Wisconsin Commission Deci- sion	2, 102, 103
Wright, Arthur, "Cost of Electricity Supply".....	2, 360

513.8—Block Meter Rate.

513.9—Step Meter Rate.

Buffalo v. Buffalo General Electric Company Rates Case. New York Com- mission (2d D.) Decision	3, 139
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 357

514—Demand Basis.

Edison Electric Illuminating Co. of Brockton Rates Case. Massachusetts Gas & Electric Commission Decision.....	3, 324
Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision.....	3, 117
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 358, 373, 387, 389
Edison Electric Illuminating Company of Boston. Massachusetts Gas and Electric Commission Decision.....	2, 53
Gas Rates, by Alten S. Miller.....	3, 380
Power Bill Chart for a Two-Rate Schedule, by E. D. Dreyfus.....	3, 317

514.1—Hopkinson Rate.

Vol. Page

Ely Light & Power Company Rates Case. Nevada Commission Decision	3, 218
Milwaukee Electric Fares Case. Wisconsin Commission Decision.....	2, 177
Red Cedar Valley Electric Company. Wisconsin Commission Decision..	2, 103
Wright, Arthur, "Cost of Electricity Supply".....	2, 361

514.11—Multiple Hopkinson Rate.

514.3—Wright Demand Rate.

514.31—Multiple Wright Demand Rate.

514.5—Three Charge Rate.

514.51—Multiple Three Charge Rate.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 133
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 358
Edison Electric Illuminating Co. of Brockton Rates Case. Massachusetts Gas & Electric Commission Decision.....	3, 324
Ely Light & Power Company Rates Case. Nevada Commission Decision	3, 219
Wright, Arthur, "Cost of Electricity Supply".....	2, 378, 379

52—DETERMINATION OF DEMAND.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 134
Chippewa Valley Railway Light & Power Company (Eau Claire) Rates Case. Wisconsin Commission Decision.....	3, 243
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 373, 374
Report of City Electrician of Chicago re Commonwealth Edison Rates..	3, 120
Wright, Arthur, "Cost of Electricity Supply".....	2, 377

521—Application of Demand.

521.1—Width.

Milwaukee Electric Rates Case. Wisconsin Commission Decision.....	2, 180
---	--------

521.2—Use for Rate Purposes.

522—Actual Measurement of Demand.

522.1—Maximum Demand Indicators.

Instrumental Methods of Measuring Maximum Demand, by T. I. Jones and W. Eichert	2, 14
Minerallac Electric Company v. The Cleveland Electric Illuminating Company and Mathias E. Turner. Decision of the Federal Court, Northern District of Ohio	2, 281

522.2—Graphic Instruments.

Graphometer	3, 272
-------------------	--------

522.3—Tests.

523—Estimated Demand.

523.1—Connected Load Basis.

Durand Light & Power Company. Wisconsin Commission Decision....	2, 100
Edison Electric Illuminating Company of Brockton Rates Case. Massachusetts Gas & Electric Commission Decision.....	3, 322
Milwaukee Electric Rates Case. Wisconsin Commission Decision.....	2, 177
Public Service Electric Company, Newark, New Jersey. Complaint v. New Jersey Commission Decision.....	3, 212
Red Cedar Valley Electric Company. Wisconsin Commission Decision..	2, 100
Ripon Light & Water Company. Wisconsin Commission Decision.....	2, 40

523.2—Area of Premises Basis.	Vol. Page
Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 135
523.3—Number of Rooms Basis.	
523.4—Number of Outlets Basis.	
523.5—Taxable Value Basis.	
524—Limiting Demand.	
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 374
53—DISCOUNTS.	
Canton Electric Co. (Ohio) Lighting Schedule.....	2, 127
Report of City Electrician of Chicago re Commonwealth Edison Rates..	3, 121
531—Prompt Payment Discount.	
532—Delayed Payment Penalty.	
Appropriation Act of the District of Columbia for 1900.....	2, 220
Vicksburg Waterworks Company. Suit re Unpaid Bills. Mississippi Supreme Court Decision	2, 214
533—Quantity Discounts.	
Willetts Rates Case. California Commission Decision.....	2, 290
534—Length of Contract Discounts.	
54—MINIMUM CHARGE.	
Acts and Resolves Passed by Massachusetts Legislature, 1913.....	3, 365
Arizona Commission Attitude Toward Minimum Charge.....	2, 111
Bruce Water & Light Commission, Application of. Wisconsin Commission Decision	2, 116
Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 131, 139
Cambridge (pop. 6,407), Maryland, Gas, Electric Light and Power Company, Complaint v. Maryland Commission Decision.....	3, 14
Compilation of Most Important Decisions Concerning.....	2, 239
Dayton Power & Light Co., Dayton, Ohio. Elimination of Minimum Charge	2, 35
Doherty, Henry L., "Equitable, Uniform and Competitive Rates".....	2, 357
Edison Electric Illuminating Company of Boston. Massachusetts Commission Decision	2, 54
Frankel Bros. v. New York Edison. New York Commission (1st D.) Decision	3, 261
Jacobs v. Water, Light and Transit Co. of Carrollton, (pop. 3,452) Missouri. Missouri Supreme Court Decision.....	3, 197
Manitowoc Electric Light Company. Wisconsin Commission Decision..	2, 42
Minimum Charge, by Judge S. M. Douglass.....	2, 15
North Adams Gas Light Company. Massachusetts Gas and Electric Commission Decision	2, 66
Ocean City (pop. 1,950) v. City Gas Light Company. New Jersey Commission Decision	2, 117
Opinion of Maryland Commission's Counsel on Minimum Charge Concession	3, 205
Portland Railway, Light and Power Company v. City of Portland et al., Decision of the United States Court, District of Oregon.....	2, 384
Portland Rate Ordinance Sustained	2, 183

55—LAMPS.

Vol. Page

551—Initial Supply.

552—Renewals.

Reduction in Tungsten Lamp Prices Foreshadows Free Renewals.....	3, 79
Free Renewal of Tungsten Lamps.....	3, 79
Free Renewals of Tungsten Lamps.....	3, 95
Free Tungsten Renewals	3, 284
New York Edison Company, the United Electric Light and Power Company, New York, the Edison Electric Illuminating Company of Brooklyn, and the Commonwealth Edison Company, Chicago. Announcement of Reduced Price of Tungsten Lamps, August 1, 1913.....	3, 251

553—Allowance When Not Supplied.

554—Sale Price.

56—STANDARD RIDERS.

Frankel Bros. v. New York Edison. New York Commission (1st D.) Decision	3, 261
Saks & Company v. New York Edison Rates Case. New York Commission (1st D.) Decision	3, 154
United Electric Light and Power Company, New York City, Complaint v., New York Commission (1st D.) Decision.....	3, 326

57—TERM OF CONTRACT.

58—TERMS AND CONDITIONS.

Atlanta Gas Light Company, Suit v., Georgia Commission Decision....	3, 346
Birmingham Railway, Light and Power Company v. Abbott. Decision of Court of Appeals of Alabama.....	3, 43
Frankel Bros. v. New York Edison. New York Commission (1st D.) Decision	3, 259
Hollander v. Westchester Lighting Company. New York Supreme Court Decision	3, 84
Mason v. Consumers' Power Company (St. Paul). Minnesota Supreme Court Decision	2, 163

59—MEASUREMENT OF ENERGY.

Energy-Cost Meter	2, 32
New Differential Watt-Per-Candle Meter, by Edward P. Hyde.....	2, 297
Recent Development in Electric Meters, by H. W. Young.....	2, 355
Rhineland Rates Case. Wisconsin Commission Decision.....	2, 153
Watt-Hour Meter Seal	2, 15
Wherland Electric Co. v. Burmeister. Minnesota Supreme Court Decision	3, 264

6—RATE DIFFERENTIALS.

Appropriation Act of the District of Columbia, 1900.....	2, 193, 220
Beloit, City of. Wisconsin Commission Decision.....	2, 40
Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 132, 133, 135
Detroit City Gas Company, Detroit, Mich., Rates Case. Michigan Supreme Court Decision	2, 167
Edison Electric Illuminating Company of Boston. Massachusetts Gas and Electric Commission Decision	2, 49, 55, 56
Edison Electric Illuminating Company of Brockton Rates Case. Massachusetts Gas & Electric Commission Decision.....	3, 324

6—RATE DIFFERENTIALS—Continued

Vol. Page

Jefferson Municipal Electric Light & Water Plant. Wisconsin Commission Decision	2,	42
Justification of Deviations in Rates for Electrical Service, by S. M. Kennedy	2,	170
Leominster Electric Light & Power Co. Massachusetts Gas & Electric Commission Decision	2,	55
Newburyport Gas & Electric Company. Massachusetts Gas & Electric Commission Decision	2,	65
New York Edison Company's Answer to Rate Discrimination Charge.	2,	148
Oklahoma Commission, 4th Annual Report.....	2,	119
Public Service Gas Company v. New Jersey Public Utilities Commission Rates Case. New Jersey Supreme Court Decision.....	3,	396
Raritan Township v. Public Service Electric Corporation. New Jersey Commission Decision	2,	398
Ripon Light and Water Co. Wisconsin Commission Decision.....	2,	42
Stoughton Gas & Electric Company. Massachusetts Gas & Electric Commission Decision	2,	65
Westfield, Massachusetts, Municipal Lighting Plant, Application of. Massachusetts Gas & Electric Commission Decision.....	3,	200
Willetts Rates Case. California Commission Decision.....	2,	289
Wright, Arthur. "Cost of Electricity Supply".....	2,	359

61—CHARACTER OF SERVICE.

Acadia Coal Company's Steam-Turbine Plant.....	2,	387
Application of Motors in Mining and Mill Installations in Colorado, by W. J. Canada	3,	46
Bruce Water and Light Commission, Application of. Wisconsin Commission Decision	2,	116
Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3,	132, 135
Central Station Energy for All-Electric Interlocking Service.....	3,	109
Central Station Ice-Making	2,	236
Central Station Power for Coal Mines, by C. W. Beers.....	3,	45
Central Station Power for Electric Railways in Chicago, by Prof. H. H. Norris	2,	44
Central Station Power in Coal Mines, by W. A. Thomas.....	3,	174
Central Station Service for Industrial Power Requirements.....	3,	157
Costs of Pumping Water at Isleton, by A. F. Bridge and Ralph Reynolds.....	2,	340
Data on the Cost of Pumping in Water Works Steam Pumping Stations, by Kenneth F. Lees	3,	381
Doherty, Henry L. "Equitable, Uniform & Competitive Rates".....	3,	389
Domestic Appliances for Load Building, by S. D. Levings.....	3,	109
Efficiency and Cost of Electrical Heating, by H. O. Swoboda.....	3,	380
Electric Energy in the Coeur D'Alenes, by John B. Fiskens.....	3,	26
Electric Fireless Cooker as a Day Load Builder.....	3,	27
Electric Power for Quarries, Gravel Plants and Contract Work, Abstract from the Report of the Committee on Electricity in Rural Districts, at the Meeting of the National Electric Light Association, Chicago, June 3-6	3,	205
Electric Railway Loads on Central Stations, by E. P. Dillon.....	3,	174
Electric Welding, by W. M. Price.....	3,	61
Electrical Drive of Kettles in Plaster Mills, by A. E. Anderson.....	2,	256
Electrical Equipment of a Modern Hotel.....	3,	93
Electrical Refrigeration for the Butcher.....	2,	251
Electrical Requirements of Certain Machines in the Rubber Industry, by C. A. Kelsey	3,	221
Electrical Service in Coal Regions	2,	92
Electrically Equipped Coal Mines in Nova Scotia, by C. H. Wright.....	2,	296
Electricity Applied to the Manufacture of Sugar, by P. S. Smith.....	3,	285

61—CHARACTER OF SERVICE—Continued

	Vol.	Page
Electricity as a Factor in Progressive Agriculture, by E. P. Edwards.....	3,	77
Electricity for Garages	3,	92
Electricity in a Modern Shoe Factory.....	3,	366
Electricity in Book-Binding Plants.....	3,	220
Electricity in Bottling Works	3,	60
Electricity in Broom Manufacturing	3,	237
Electricity in Button Manufacturing	3,	205
Electricity in Carriage and Wagon Works.....	2,	399
Electricity in Casket Works.....	2,	92
Electricity in the Cement Industry, by L. D. Gilbert.....	3,	46
Electricity in Coal Mines	2,	387
Electricity in Coffee and Spice Mills.....	3,	123
Electricity in Cooper Shops	2,	16
Electricity in Cotton Mills	2,	296
Electricity in Cotton-Seed-Oil Mills	2,	340
Electricity in Department Stores	3,	303
Electricity in Hotel Service	2,	204, 220
Electricity in Iron and Steel Mills.....	2,	370
Electricity in Jewelry Manufacturing	3,	333
Electricity in Knitting Mills	2,	147
Electricity in Knitting Mills	3,	187
Electricity in Machine Shops	3,	28
Electricity in Mattress Manufacturing	2,	108
Electricity in Metal Mining in Colorado.....	2,	170
Electricity in Packing Plants	3,	142
Electricity in Paint and Varnish Plants.....	2,	31
Electricity in Piano Factories	3,	318
Electricity in Shoe Factories, by H. O. Stewart.....	2,	204
Electricity in Shoe Repairing	3,	46
Electricity in Soap Manufacturing	3,	253
Electricity in Stove Manufacturing	2,	123
Electricity in Tanneries	2,	140
Electricity in Zinc Mining	3,	270
Farmer as a Consumer of Central Station Power, by H. W. Young.....	3,	27
Hotel as a Central Station Consumer, by C. A. Collier.....	3,	380
Hotel Consumer	3,	380
Hydroelectric Energy for Coal Fields	2,	156
Ice Making for Central Stations.....	2,	399
Isolated Plant of Gasoline Engine Factory, by Harry C. Spillman.....	2,	354
Leominster Electric Light & Power Co. Massachusetts Gas & Electric Commission Decision	2,	55
Mechanical Refrigeration and Ice Making from a Central Station Point of View, by E. F. Tweedy.....	3,	285
Milwaukee Electric Rates Case. Wisconsin Commission Decision.....	2,	180
Mining Loads for Central Stations, by Wilfred Sykes and Graham Bright	3,	123
Miscellaneous Motor Drives	3,	366
Motor Drive in Candy Factories	2,	15
Motor Drive in Cement Mills	3,	187
Motor Drive in Pulp and Paper Mills.....	3,	109
Motor Drive in Railroad Car and Repair Shops.....	3,	60
Motor Drive in Tanneries	3,	270
Natick Gas Light Company Rates Case. Massachusetts Gas & Electric Commission Decision	2,	154
Observations on Horse and Motor Trucking, by H. F. Thompson, and Harold Pender	3,	45
Operating Characteristics of the Modern Passenger Elevator, by E. F. Tweedy	3,	221
Power Costs for Mining, by James W. Malcolmson.....	3,	76

61—CHARACTER OF SERVICE—Continued

Vol. Page

Power Requirements of Rolling Mills, by Wilfred Sykes.....	2, 108
Purchased Power in Coal Mines, by H. C. Eddy.....	3, 76
Readiness to Serve Methods—Electric Power on the Farm, by Ross B. Mateer	2, 236
Readiness to Serve Methods; Modernizing the House, by Ross B. Mateer.....	2, 256
Readiness to Serve Methods. Reclaimed Lands, by Ross B. Mateer.....	2, 340
Regulation of Public Utilities in Wisconsin, by Commissioner Halford Erickson	3, 10
Report of the Committee (N. E. L. A.) on Electricity in Rural Districts, Central States, C. W. Pendell, Chairman.....	3, 173
Report of the Committee (N. E. L. A.) on Electricity on the Farm, Eastern States, John C. Parker, Chairman.....	3, 174
Report of the Committee (N. E. L. A.) on Refrigeration, George H. Jones, Chairman	3, 174
Some Phases of Central Station Load Building, by E. M. Fay.....	2, 44
Woodworking Plants as Central Stations Customers.....	3, 27

611—Light.

Some Tendencies in Electric Light.....	3, 176
--	--------

611.1—Residences.

Is Residence Lighting Profitable, by O. B. Snyder.....	2, 15
--	-------

611.2—Commercial.

Present Practice in Small Store Lighting with Tungsten Filament Lamps, by Clarence L. Law and A. L. Powell.....	2, 76, 108
---	------------

611.5—Wholesale.

612—Power.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 132
Clinton Gas Light Company. Massachusetts Gas and Electric Commission Decision	2, 67
Purchased Power in New York State.....	3, 187

612.1—Small Power.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 133
--	--------

612.2—Large Power.

Fitchburg Gas & Electric Light Co. Massachusetts Gas and Electric Commission Decision	2, 56
Lincoln Traction Co., Complaint v. Nebraska Commission Decision....	3, 267
Newburyport Gas & Electric Co., Massachusetts Gas & Electric Commission Decision	2, 67

612.3—Unrefined.

612.4—Distribution Economies.

Plea for Higher Pressure in Distribution, by J. E. Bullard.....	3, 208
Saks & Co. v. New York Edison Co. New York Commission (1st D.) Decision	3, 155

613—Combined Light and Power.

Vol. Page

614—Heating and Cooking.

Chairman's Address, Meeting of the "Point Five" Association, June 17, 1913, London, England	3, 254
Data on Electric Cooking and Heating, by Ben M. Maddox.....	3, 4
Electric Cooking and the Field It Offers Central Stations, by Henry F. Holland	3, 46
Electric Heating and Cooking, by Thomas Roles.....	3, 47
Encouraging Off-Peak Electric Heating and Cooking, and Stanley Electric Heat Storage Stove	3, 142
Marblehead, Mass., Municipal Light Plant, Application of. Massachusetts Gas and Electric Commission Decision.....	3, 211
Special Rate for Cooking and Heating or both.....	2, 287

615—Feature Rates.

Buffalo v. Buffalo General Electric Co. Rates Case. New York Commission (2d D.) Decision	3, 135
Rates for Garaging Electric Vehicles, Discussed at Chicago.....	2, 322

615.1—Limited Hour Service.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 131
Double Rate for Charging in Lynn.....	3, 8
Incidental Features of Off-Peak Power Contracts.....	3, 123
Milwaukee Electric Fares Case. Wisconsin Commission Decision.....	2, 182

615.2—Development Rates.

Chippewa Valley Railway Light & Power Company (Eau Claire) Rates Case. Wisconsin Commission Decision	3, 243
Regulation of Public Utilities in Wisconsin, by Commissioner Halford Erickson	3, 10

616—Official or Government Rates.

Special Rate to State, Municipal or Federal Buildings. Rulings of Various Commissions on	2, 96
--	-------

616.1—Street Lighting.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 134
Lighting Streets by Electricity—Relative Merits of Arc and Incandescent Lamps, by Harold Lasker	2, 400
Malden (pop. 44,404) v. Malden Electric Company. Massachusetts Commission Decision	2, 115
Manchester Street Lighting Reports	2, 147
Ossining v. Northern Westchester Lighting Company Rates Case. New York Commission (2d D.) Decision.....	2, 344
Plymouth Electric Light Company. Massachusetts Gas & Electric Commission Decision	2, 68
Recent Developments in the Street Lighting of Manchester, by S. L. Pearce and H. A. Ratcliff	3, 285
Report of the Committee on Street Lighting, by John W. Lieb, Jr.	3, 174
Report Upon the Fair and Reasonable Price of a 6.6 Ampere Magnetite Arc Light Per Year, by William D. Marks.....	3, 254
Smith v. Rourke, Commissioner of Public Works (Boston). Massachusetts Supreme Court Decision	3, 299
Street Lighting of Greater New York, by C. F. Lacombe.....	3, 208
Street Lighting Rates, by J. R. Cravath.....	2, 30

616.1—Street Lighting—Continued

Vol. Page

Street Lighting with Ornamental Luminous Arc Lamps, by C. A. B. Halvorson, Jr., and Discussion by Members. Transactions of the Illuminating Engineering Society	3, 61
Waupaca Electric Light and Railway Company and the City of Waupaca, Joint Application of. Wisconsin Commission Decision.....	2, 28
Worcester v. Worcester Electric Light Company Street Lighting Rates Case. Massachusetts Gas & Electric Commission Decision.....	2, 21

617—Breakdown or Auxiliary Service.

Chandler Electric Company, Chandler (pop. 2,024), Oklahoma, Complaint v. Oklahoma Commission Decision	3, 201
Edison Electric Illuminating Co. of Boston. Reduction in Minimum Charge	2, 20
Frankel Bros. v. New York Edison Company. New York Commission (1st D.) Decision	3, 260, 261
Middletown Gas and Electric Company Rates. Ohio Commission Decision	2, 250, 256

62—FACTORS AFFECTING RATES.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 139
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 360
Power, Load and Diversity Factors—Their Relation to New Business, and Station Income, by A. G. Rakestraw.....	3, 349
Profitable and Unprofitable Loads, by A. G. Rakestraw.....	3, 397

621—Demand Factor.

Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 131
Wright, Arthur, "Cost of Electricity Supply".....	2, 375, 378

622—Diversity Factor.

Clinton Gas Light Company. Massachusetts Commission Decision....	2, 65
Edison Electric Illuminating Company of Boston. Massachusetts Gas & Electric Decision	2, 51
Wright, Arthur, "Cost of Electricity Supply".....	2, 378

623—Load Factor.

Analysis of Central-Station Conditions in a Small Town.....	2, 321
Analyzing Peak Loads	3, 61
Buffalo v. Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 132
Building Up a Day Load for a Small Central Station, by William E. Haseltine	2, 283
Burkhart Milling & Electric Power Commission. Wisconsin Commission Decision	2, 41
Connected Load Investigations	2, 339
Developing Profitable Summer Day Loads, by A. G. Rakestraw.....	3, 61
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 293
Durand Light & Power Company. Wisconsin Commission Decision....	2, 103
Effect of Load Factor on Cost of Electric Railway Passenger Service, by C. N. Duffy	2, 370
How to Increase the Power Load of Small Central Station Companies, a Paper by D. Davis	2, 124
Load Curves of a Public Garage.....	2, 124
Load Factors and Rates, a Paper Compiled by the Bureau of Statistics and Accounts, Public Service Commission for the City of New York, Adna F. Weber, Chief Statistician.....	104, 144, 275

623—Load Factor—Continued

Vol. Page

Milwaukee Electric Railway & Light Co. Wisconsin Commission Decision	2, 103
Readiness to Serve Methods, the Utility Versus Agricultural Sales, by Ross D. Mateer	2, 169
Ripon Light & Water Company. Wisconsin Commission Decision	2, 41
Sale of Electrical Appliances for Regular Lamp Circuits and Their Effect on Load and Income, by S. M. Kennedy	2, 169
Study of Load Factors, by S. A. Fletcher	2, 14
Using the Load Curve in Central Station Advertising	2, 282
Value of Off-Peak Loads to Central Stations, by Alex D. Bailey	2, 107
Wright, Arthur, "Cost of Electricity Supply"	2, 364, 379, 383

624—Power Factor.

625—Distance Factor.

Saks & Co. v. New York Edison Company. New York Commission (1st D.) Decision	3, 155
--	--------

626—Seasonal Factor.

Doherty, Henry L. "Equitable, Uniform and Competitive Rates"	3, 359
--	--------

627—Conjunctional Use.

Boston School Committee. Massachusetts Gas & Electric Commission Decision	2, 54
Frankel Bros. v. New York Edison Company. New York Commission (1st D.) Decision	3, 261
Newark. City of, v. Public Service Electric Company and Public Service Gas Company Rates Case. New Jersey Commission Decision	2, 236

629—Competition.

Doherty, Henry L. "Equitable, Uniform and Competitive Rates"	3, 361
--	--------

65—DISCRIMINATION.

Application of Various Public Utilities for Permission to Charge Less Than Published Schedules of Rates in Certain Classes of Cases. California Commission Decision	3,
Application of Various Public Utilities for Permission to Charge Less Than Published Schedules of Rates in Certain Classes of Cases. Supplemental Opinion of the California Commission	3,
Attica Water, Gas and Electric Company, New York v. Alden-Batavia Natural Gas Company. New York Commission (2d D.) Decision	2,
Cincinnati, Milford & Loveland Traction Company, Complaint v., Ohio Commission Decision	3,
Colorado Telephone Company v. Wilmore. Colorado Supreme Court Decision	2,
Delaware and Atlantic Telegraph & Telephone Company Rates Case New Jersey Commission Decision	2,
Doherty, Henry L. "Equitable, Uniform and Competitive Rates"	3,
Edison Electric Illuminating Company of Brooklyn Rates Case. Massachusetts Gas & Electric Commission Decision	3,
Granville Electric and Gas Company of Granville, New York, Rate Case. New York Commission (2d D.) Decision	2, 250
Milwaukee Electric Rates Case. Wisconsin Commission Decision	2, 175
Municipal Appeal to State Commission	2, 107
New York Edison Company, Complaint v. New York Commission (1st D.) Decision	2, 194
Oklahoma Commission, 4th Annual Report	2, 119
Portland Railway of Light and Power Co. Plaintiff in Error, v. Railroad Commencing Rates, etc. United States Supreme Court Decision	3, 279

65—DISCRIMINATION--Continued

Vol. Page

Provisions of the Public Utility Laws of the Different States, and the Practice of the Various State Commissions Regarding.....	3, 344
Saks & Co. v. New York Edison Company. New York Commission (1st D.) Decision	3, 154

7—SCHEDULES AND SERVICE.

Tehama County Telephone Company & Glenn County Telephone Company v. Pacific Telephone & Telegraph Co. California Commission Decision	3, 23
--	-------

71—SCHEDULES.

Reduction of Rates in St. Louis.....	2, 251
Regulations Governing the Construction and Filing of Utility Rate Schedules. Circular No. 5, 8 pages, Issued by the Public Service Commission of Ohio	2, 44
Report of the Rate Research Committee, E. W. Lloyd, Chairman.....	3, 173

711—Form of Schedules.

Committee on Rates, New England Section of the National Electric Light Association. Meeting for January 24, 1913.....	2, 249
Lucid Rate Schedules	2, 251
Rate Systems From the Central Station Solicitor's Viewpoint, by J. E. Bullard	2, 122

712—Publicity of Schedules.

Max O. Buren et al. v. Southern Pacific Company et al. Interstate Commerce Commission Decision	3, 21
--	-------

713—Filing of Schedules.

Idaho Commission Order of June 10, 1913, Concerning.....	3, 343
Michigan Railroad Commission, Order for Filing Schedules.....	2, 234
Michigan Railroad Commission, Report of Committee on Uniform Filing of Rates and Schedules	2, 95

714—Notice for Change of Rate.

715—Time of Effect.

Saks & Co. v. New York Edison Company. New York Commission (1st D.) Decision	3, 154, 155
--	-------------

72—RATE SCHEDULES.

Attleboro Gas Light Company Corporation Rates Case. Massachusetts Gas & Electric Commission Decision	3, 39
Aurora, Elgin and Chicago Railroad Company, Elgin Lighting Department, Voluntary Reduction of Rates for Residence Service in Elgin, Ill., Effective March 1, 1913.....	2, 392
Borough of St. Marylebone Electric Supply (London, England) Modification of Tariff for Cooking	2, 83
Brooklyn Borough Gas Company Rates Case. New York Commission (1st D.) Decision	3, 250
Buffalo v. The Cataract Power and Conduit Company, and the Buffalo General Electric Company Rates Case. New York Commission (2d D.) Decision	3, 19
Chippewa Valley Railway, Light and Power Company, Eau Claire. Wisconsin Commission Decision	2, 137
Cleveland, Ohio, Municipal Lighting Department, New Schedule of Rates.....	3, 22
Consolidated Gas, Electric Light and Power Company of Baltimore. Rate Schedules	3, 199, 275

72—RATE SCHEDULE—Continued

Vol. Page

Consolidated Gas, Electric Light and Power Company of Baltimore, Schedules as Amended by Supplemental Order of Maryland Commission	3, 219
Contract Between Great Falls Power Company and Puget Sound Railway	2, 343
Duquesne Light Company, Pittsburgh, Penn. Rate Schedules.....	2, 391
Edison Electric Illuminating Co. of Boston. Miscellaneous Energy Rate.	2, 20
Electricity Rates, New York City, 1913, Reprint from an Appendix of the Annual Report of the Public Service Commission (1st D.) New York for 1913	2, 297
Equitable Electric Light Company, Lake Geneva, Wisc. Rates Case. Wisconsin Commission Decision	3, 296
Flatbush Gas Company, New York, Supplement to Schedule of Rates for Power	3, 232
Fort Atkinson Water and Light Commission, Application of, Wisconsin Decision	3, 294
Harrisburg Light & Power Company, Penn. Electric Current for Residential Purposes	2, 79
Hartford, Connecticut, Rates Schedules.....	2, 191
Haverhill Gas Light Company Rates Case. Massachusetts Gas & Electric Decision	2, 339
Light and Power Rates of Seattle Municipal Plant, by F. D. Ross and Correction by W. F. Grambs	2, 108
Lighting Rates in Ohio, Collected and Compiled by the Ohio Electric Light Association	3, 15
Milwaukee Electric Rates Case. Wisconsin Commission Decision.....	2, 178
Milwaukee Electric Rates Case. Supplementary Order. Wisconsin Commission Decision	3, 41
New Glarus Municipal Electric Light and Water Plant, Application of, Wisconsin Commission Decision	3, 233
New London Gas and Electric Division of the Connecticut Power Company. Rate Schedules	3, 339
Northern California Power Company Redding, California, Application of, California Commission Decision	2, 271
Palo Alto Gas Company Rates Case. California Commission Decision..	3, 147
Parsons Rates Case. Kansas Commission Decision	2, 349
Queenborough Gas & Electric Co. Rates Case. New York Commission (1st D.) Decision	3, 56
Rates of Public Utilities in Wisconsin, Part 1, Electric Rates, a Compilation of Rates in Force June 1, 1912, Published by the Wisconsin Railroad Commission	2, 251
Remote Control of Two Rate Meters for Off-Peak Service.....	3, 22
Rochester Railway and Light Company New Rate for Power.....	2, 80
Sheffield, England, Rate Schedules	3, 99
Southern Sierras Power Company, San Francisco, Cal., Application of, California Commission Decision	3, 20
Superior Rates Case. Wisconsin Commission Decision	2, 136
Telephone Rate Raise Authorized: Nebraska Commission Sanctions Fifty Per Cent Increase	3, 379
Westfield, Mass., Municipal Lighting Plant, Application of, Massachusetts Gas & Electric Commission Decision.....	3, 199

729—Maximum Rate.

Edison Electric Illuminating Company of Brockton Rates Case. Massachusetts Gas & Electric Commission Decision.....	3, 326
--	--------

73—TERMINOLOGY.

"Kelvin" and the Kilowatt-Hour	2, 354
--------------------------------------	--------

731—Electric Definitions.

733—Classifications.

733.1—Dewey Decimal System.

Vol. Page

Dewey Decimal System of Classification Extended to Engineering.....	2, 400
Extension of the Dewey Decimal System of Classification Applied to the Engineering Industries, by L. P. Breckenridge and G. A. Goodenough	2, 168

733.2—Rate Research System.

735—Technical Data.

Comparative Energy Consumption on the Spietz-Frutigen Railway....	3, 31
Rivalry Between Gas and Electric Light.....	3, 127

735.1—Moonlight Schedules.

Street Lighting Tables	2, 183
------------------------------	--------

735.2—Daylight Schedules.

Variation of Residential Lighting with the Season.....	2, 251
--	--------

735.5—Meters.

Electrical Instruments and Meters in Europe, by H. B. Brooks.....	3, 96
Report of the Committee on Meters, W. H. Fellows, Chairman, and Code for Electricity Meters, Prepared by the Electrical Testing Laboratories Under the Instructions of the Joint Meter Committee of the Edison Illuminating Companies, and of the National Electric Light Association	3, 175

738—Bibliographies.

Public Utility References, Compiled by F. N. Morton.....	3, 96
--	-------

739—General Data.

Cost of Living	3, 144
Plotted Curves and Curve Sheets, by Professor E. B. Smith.....	2, 169

74—TECHNICAL COMPANY DATA.

Electric Power in Cleveland	3, 48
Great Steam-Electric Power Plant, by W. L. Abbott.....	3, 48
Hand Book for Users of Central Station Lighting and Power Service, Issued by the Commonwealth Edison Company, Chicago, 32 pages..	3, 80

75—COMPARATIVE COMPANY DATA.

Central Station Facts and Factors in the State of Iowa, by Austin Burt	3, 127
Commonwealth Edison Service, Address by Peter Junkersfeld.....	3, 15
Grand Rapids-Muskegon Power Company, Comparison of the Rate of 30 Cities	2, 47
Municipal and Commercial Lighting and Power Statistics, of the Principal Cities in the United States, Mexico, Canada and Hawaii. Pamphlet Compiled by the Butte, Montana, Electric and Power Company	3, 15

77—SAFETY OF SERVICE.

Brooklyn Heights Railroad Company v. Public Service Commission for the First District. New York Supreme Court Decision.....	3, 363
Northern Connecticut Light & Power Company and Southern New England Telephone Company re Accident from Improper Proximity of Wires. Connecticut Commission Decision	3, 217
Oklahoma Corporation Commission, 4th Annual Report.....	2, 119
Safety Measures Adopted by Public Service Commission.....	3, 112
Salt Lake and Ogden Railway, Suit v. Decision of Supreme Court of Utah	2, 167
Schwartz v. California Gas and Electric Corporation. California Supreme Court Decision	2, 29
Wiring Rules in Various Cities	2, 188

771—Inspection.	Vol. Page
Electrical Code of the City of New York.....	3, 256
Investigation of the Conditions Governing the Choice of a Proper Quality Standard for Artificial Gas. By the Joint Committee on Calorimetry of the New York Public Service Commission (2d D.) and the Gas Corporations Subject to Its Jurisdiction.....	3, 288
Regulations for Line Construction in Oregon.....	3, 336
Rules and Regulations for Electrical Installations, Issued by the Hy- dro-Electric Power Commission of Ontario.....	3, 256
Rules Concerning Overhead High Tension Wires.....	3, 288
772—Reports of Accidents.	
779—Smoke and Health Regulation.	
Economic Phases of Smoke Abatement.....	2, 75
78—SERVICE.	
Delaware and Atlantic Telegraph and Telephone Company Rates Case. New Jersey Commission Decision	2, 395
Liability of Central Stations for Failure of Supply, by M'Guire & Mooney	2, 170
Proposed Investigations for Inductive Interference.....	3, 31
Proposed Rules and Regulations for Service Supplied by Electric Light Companies, New Jersey Board of Public Utility Commissioners.....	2, 32
Report of Ray Palmer, City Electrician of Chicago, on Commonwealth Edison Rates	3, 119
781—Adequacy.	
781.1—Increase of Facilities.	
Rhinelanders Rates Case. Wisconsin Commission Decision.....	2, 154
782—Efficiency.	
782.1—Regularity.	
Independent Owners' Garage Co. v. Hirsch. New York Supreme Court Decision	3, 348
782.2—Voltage Regulation.	
782.5—Lamp Efficiency.	
New Prices on Tungsten Lamps November 1, 1912.....	2, 95
Relation of the Incandescent Lamp to Lighting Service, by Robert E. Campbell and M. D. Cooper	3, 192
Report of Experiments on Tungsten Filament Glow Lamps, Carried Out by the National Physical Laboratory, London, England, for the En- gineering Standards Committee	3, 317
785—Accuracy of Standards.	
786—Tests and Accuracy of Meters.	
Limits of Error for Continuous Current and for Single Phase Alternat- ing Current Meters. England.....	3, 297
Standards for Gas and Electric Service, by J. N. Cadby.....	2, 372
Tentative Rules of Electric Service and of Gas Service. Wisconsin.....	2, 256
789—Kind of Service.	
Consolidated Gas, Electric Light and Power Company of Baltimore. Complaint v., Maryland Commission Decision	3, 99
State ex rel. W. J. Armstrong Company v. City of Waseca. Minnesota Supreme Court Decision	3, 363
Kerlin v. City of Devil's Lake et al. North Dakota Supreme Court De- cision	3, 282

8—MUNICIPALITIES.

Vol. Page

Municipal Bonds	3, 255
Partiality Toward Municipal Operation	3, 127
Public Utility Advice From the Public Point of View, by Delos F. Wilcox	3, 111

81—MUNICIPAL OR LOCAL REGULATION OF UTILITIES.

Against Public Control. Report of Illinois Legislative Public Utilities Commission, Hon. John Dailey, Chairman.....	3, 159
Answer of the Chicago Telephone Company to the Report of Edward W. Bemis, Submitted to the Committee on Gas, Oil and Electric Light, of the City of Chicago, November 21, 1912.....	2, 138
Applications by Two Different California Cities to Transfer Their Jurisdiction Over Various Utilities to the State Commission. California Commission Decision	3, 202
California-Oregon Power Co. v. City of Grants Pass et al. Decision of United States District Court, Oregon.....	3, 107
Chicago Telephone Rate Investigation, by Professor E. W. Bemis.....	3, 126
Des Moines Gas Case. Decision of the United States District Court, Southern District of Iowa	2, 7
Emporia, City of, (Kansas) v. Emporia Telephone Company. Kansas Supreme Court Decision	2, 368
Fort Smith Light and Traction Company v. City of Fort Smith et al. Decision of United States District Court, Arkansas.....	3, 106
Haverhill Gas Light Company Rates Case. Massachusetts Gas & Electric Commission Decision	2, 333
Home Rule of Public Utilities Recommended in Seattle.....	2, 340
Kittanning, Borough of, v. American Natural Gas Co. Pennsylvania Supreme Court Decision	3, 180
LaGrange, Georgia, Application for Information re Municipal Regulation. Georgia Commission Decision	3, 346
Old Colony Trust Co. v. City of Omaha, Nebraska. United States Supreme Court Decision	3, 331
Pioneer Telephone and Telegraph Co. v. Oklahoma Corporation Commission. Decision of Supreme Court of Oklahoma.....	2, 214
Rate Fixing and Appraisal: State Control versus Municipal, by William J. Hagenah	2, 138
Report of the Investigation of the Chicago Telephone Company, Submitted to the Committee on Gas, Oil and Electric Light of the Chicago City Council, by Professor E. W. Bemis, Oct. 31, 1912.....	2, 85
State and Municipal Control of Utilities, by Mr. John M. Eshleman....	2, 29
State ex rel. Marshall, Attorney for Public Utilities Commission v. Wyandotte County Gas Company, Kansas City and Rosedale. Kansas Supreme Court Decision	2, 294
State v. Municipal Regulations of Public Utilities, by Commission President John M. Eshleman	3, 79
Undesirability of "Home Rule" of Utilities, by B. H. Meyer.....	3, 191
Wilmington City Railway Company v. Public Utility Commissioners for the City of Wilmington. Decision of the District Court, Delaware....	2, 99

82—STATE REGULATION OF MUNICIPAL UTILITIES.

Commission Question in Illinois	2, 323
Neenah, Wisconsin. Wisconsin Commission Decision.....	3, 233
On Exempting "Municipals" from Supervision.....	3, 352
Regulation and Municipal Operation	3, 63
State Regulation of Public Utilities Is Only a Return to Old Common Law Methods of Control, by W. L. Huggins.....	3, 94

83—MUNICIPAL OWNERSHIP.

Vol. Page

Annual Report of the Electric and Water Works Department, Marshall, Michigan, for Year Ending April 14, 1913.....	3, 252
Annual Report of the Light and Power Commission, Marquette, Mich., for the Fiscal Year Ending March 11, 1913.....	3, 252
Bell et al v. David City et al. Nebraska Supreme Court Decision.....	3, 364
Biennial Convention of Mayors, Aldermen, City Attorneys and Other City Officials of the Cities of Montana, Helena, Jan. 15, 1913.....	2, 284
Bond Issue for Los Angeles Municipal Distribution System Defeated.....	3, 80
Central-Station Results at Holland, Michigan.....	2, 297
Commission Control as Curb on Municipal Ownership, by George A. Lee.....	3, 95
Control of Municipal Utility Rates.....	3, 400
Electric Rates in Seattle, Wash., by Glenn Marston.....	3, 239
Expensive Experiment. The Hydroelectric Power Commission of Ontario, by Reginald Pelham Bolton.....	3, 16
Leased Private Operation of a Municipal Plant.....	2, 140
Meaning of the Los Angeles Bond Election.....	3, 95
Minden-Edison Light and Power Company v. City of Minden. Nebraska Supreme Court Decision.....	3, 332
Municipal Ownership of Public Utilities, E. M. Bassett.....	2, 402
Municipal Ownership of Public Utilities, an Opinion by Mr. Carman F. Randolph of New York City.....	3, 383
Neacy v. City of Milwaukee. Wisconsin Supreme Court Decision.....	2, 367
New York Legislative Committee Opposed to State Hydroelectric Scheme.....	2, 356
Ownership of Public Utilities, by John B. Miller.....	2, 76
Political versus Private Operation.....	3, 333
Preliminary Report of Committee Appointed by Mayor of Newburyport, Mass., to City Council.....	2, 216
Principles and Methods of Municipal Trading, by Douglas Knoop.....	2, 324
Public Ownership and the Increase of Taxation in Great Britain, by Mark Owen.....	3, 255
Regulation of Public Utilities in Wisconsin, by Commissioner Halford Erickson.....	3, 41
Rochester Railway & Light Company, Application of. New York Commission (2d D.) Decision.....	2, 324
Second National Electric Light Association Analysis of New York Hydroelectric Plants, by Arthur Williams.....	3, 30
Some Problems of Public Ownership, by Walter Allen.....	2, 300

831—Purchase by Municipality.

Appleton Water Works Co. v. Railroad Commission of Wisconsin. Wisconsin Supreme Court Decision.....	3, 307
Asbury et al. v. Town of Albemarle. North Carolina Supreme Court Decision.....	3, 297
Proposed Purchase of the Plant of the Racine Water Company by the City of Racine, Wisc. Decision of the Wisconsin Railroad Commission.....	3, 58

84—PUBLIC OR MUNICIPAL OPERATION.

Henry v. City of Lincoln. Nebraska Supreme Court Decision.....	3, 108
Lake Mills, Wisc., Municipal Light and Water Commission, Application of. Wisconsin Commission Decision.....	3, 249
Moral of State Railways in Italy.....	3, 399
New York Public Service Commission (2d D.) Annual Report, 1911. Vol. 1.....	2, 99
Operating a Central Station Against Municipal Competition, by Ed. Kelly.....	3, 239
Present Status of Standard Forms for Reporting Statistics of Municipal Public Utilities.....	2, 124
Private Operation Under Municipal Ownership.....	3, 352
Reduction in Ontario Commission Rates.....	2, 220
Vail, Theo. N., on Regulation of Public Utilities.....	3, 378

89—MUNICIPAL STATISTICS.

Vol. Page

Financial Statistics of Cities Having a Population of Over 30,000, 1910.

Issued by the Bureau of the Census of the Department of Commerce

and Labor, Washington, D. C.....3, 126

9—GENERAL.

91—PROMOTION AND GROWTH OF BUSINESS.

Central Station Commercial Possibilities, by H. S. Knowlton.....	3, 160
Commercial Engineering for Central Stations, by Arthur Williams and Edmund F. Tweedy	2, 60
Commercial Trend of the Producer-Gas Power Plant in the United States, by R. H. Fernald	3, 112
Economics of Monopoly in Public Service Business, by Samuel Insull.....	3, 63
Electric Service for Towns of Less Than 5,000 Inhabitants, by J. Edward Kearns	3, 175
Electricity as Future Motive Power for Steam Railroads, by E. M. Herr.....	2, 92
Electrification of Railroads	3, 144
Electrification Progress in the United States.....	3, 192
Engineering and Commercial Status of Current Consuming Devices.....	3, 64
Engineering Reports on Isolated Plants, by A. S. Witmer.....	2, 403
Financial Needs of the Electrical Industry, by Frank A. Vanderlip.....	3, 400
Monopoly in Energy Supply	3, 96
Power from Waste Heat, by Walter C. Hamm.....	3, 272
Preparing for Electrification of Steam Roads.....	2, 403
Production and Distribution of Energy, by Samuel Insull.....	3, 288
Progressive Spirit, by S. M. Kennedy.....	2, 124
Reciprocity Between Municipalities and Public Service Companies, by Richard Schadelee	3, 320
Results of a Progressive Central Station Commercial Policy.....	3, 128
School to Teach the Selling of Electricity.....	2, 356
Some Problems in Electrical Engineering, by Charles P. Steinmetz.....	2, 92
Trend Toward Utility Monopoly; Change in Public Sentiment Regarding Public Service Competition, by Bernard E. Sunny.....	3, 320
Trunk Line Electrification, by Charles P. Kahler.....	3, 127
2400-Volt Railway Electrification, by H. M. Hobart.....	3, 128
Unified Public Utilities in Central Illinois, and a Great Rural Network.....	3, 160
Wisconsin Gas Progress, by I. R. Wortendyke.....	3, 319

92—ECONOMY AND EFFICIENCY.

Analysis of the Losses of a Hydro-Electric System, by J. D. Ross.....	2, 140
Attleboro Gas Light Company Corporation Rates Case. Massachusetts Gas and Electric Commission Decision.....	3, 39
Management of Public Electric Supply Undertakings, by A. Hugh Seabrook	2, 140
Overloading the Interstate Commerce Commission.....	2, 298
Public and Private Efficiency	2, 356
Public Service Gas Company Rates Case. New Jersey Commission De- cision	2, 234
Public Service Gas Co. v. New Jersey Public Utilities Commission. New Jersey Supreme Court Decision	3, 397

95—PROGRESS IN THE ART.

Chicago's Latest Generating Station, by H. H. Norris.....	2, 30
Diesel Engine for Central Station Service on the Pacific Coast, by J. W. White, Jr.	2, 300
Doherty, Henry L. "Equitable, Uniform and Competitive Rates".....	3, 388
Future of Gas Lighting in View of Electric Competition, by R. F. Pierce	3, 383
Generating Energy at Coal Mines	2, 15

95—PROGRESS IN THE ART—Continued.

	Vol.	Page
Harmonizing Varying Frequency Networks	3,	80
Recent Development of Gas Power in Europe, by H. J. Freyn.....	2,	300
Sources of Energy Available for Power, by H. S. Hele-Shaw.....	2,	404
Status of the Gas Producer and of the Internal Combustion Engine in the Utilization of Fuels, by Robert Heywood Fernald.....	2,	16
Three-Car Storage Battery Train	2,	29
World's Largest Power Plant	3,	160

96—CO-OPERATION.

Co-operation in Public Service	2,	268
Co-operative Regulation	2,	299
Modern Power Network, the Waterbury-New Britain System, by Charles Rufus Harte	2,	404
Practical Co-operation Between Central Station and Isolated Plant, by Percival Robert Moses	2,	388
Selling Energy to Municipal Electric Plants	2,	404
Sharing Securities with the Public	3,	64

97—COLLATERAL BUSINESS OF UTILITIES.

Lowell Gas Light Co. Massachusetts Gas & Electric Commission De- cision	2,	68
Milwaukee Electric Rates Case. Wisconsin Commission Decision.....	2,	178
New England Railroad Case. Interstate Commerce Commission.....	3,	277

98—PUBLIC RELATIONS.

Analysis of Some Complaints and Grievances of Central Stations Cust- omers, by A. R. Corder.....	3,	320
Commercial and Agricultural Organizations of the United States. Pamph- let issued by the Department of Commerce and Labor, Washington, D. C.	3,	256
Community and Utility Conditions; Relations Which Should Exist Be- tween Public and Companies, by Morris Knowles.....	3,	96
Efficiency in Utility Advertising, by E. St. Elmo Lewis.....	3,	304
Larger Arbitration Board	3,	240
Making the Public Your Friend, by A. W. Warnock.....	3,	144
Municipality and the Company, by Joseph H. Dunkel.....	3,	240
Newspaper Advertising Prevents Arbitrary Reduction in Rates.....	3,	64
Obligations of Public Service Corporations, by Charles M. Cohn.....	2,	188
Public and the Gas Company, by J. C. M. Shrewsbury.....	3,	240
Public Relations, by Harold Almert	2,	188
Public Relations; Creating Friendship for Utility Companies by the Use of Educational Publicity, by H. J. Gonden.....	3,	32
Public Service Publicity Work	3,	112
Public Utility Companies as Good Citizens, by William H. Hodge.....	3,	32
Publicity of a Gas Company, by F. W. Stone	3,	336
Relations of Public Utility Companies with the Public, by J. W. Gillette	3,	192
Report of City Electrician of Chicago on Commonwealth Edison Rates.....	3,	120
Washington Workmen's Compensation Act and the Results of Its First Year of Administration, by L. R. W. Allison..	3,	128
Winning the Public; Study the Public's Good; Working with the Pub- lic; three articles by Wm. H. Hodge.....	2,	108

99—EMPLOYEES.

Electrical Injuries. Their Causation, Prevention and Treatment, Designed for the Use of Practical Electrical Men, by Charles S. Laufer, M. D.....	2,	156
Graded Instruction in Rate Making and Rate Application.....	2,	172
Public Service Women Workers	2,	236
School for Salesmen of the Union Electric Light and Power Company, St. Louis, Mo.....	2,	215
Telephone Pension Plan	2,	124

